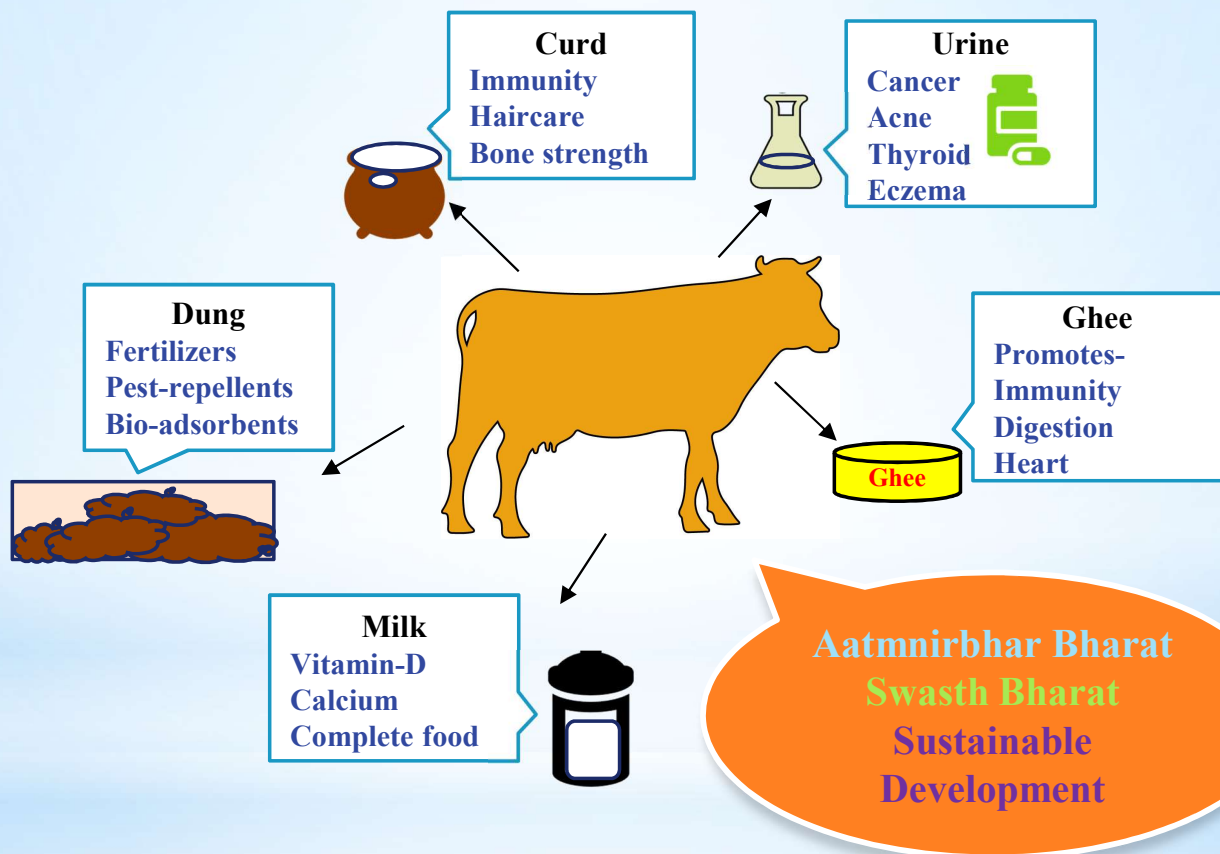




## *National conference*

*on*

## *Gau-Vigyan in modern life and medical science*



# NCGV-2023

May 20-21, 2023

Indian Institute of Technology Guwahati, India

In association with

Bharatiya Govansh Rakshan Samvardhan Parishad (BGRSP)



**NATIONAL CONFERENCE ON  
GAU VIGYAN (NCGV) - 2023  
20<sup>th</sup> - 21<sup>st</sup> May, 2023**



**Organized By**

**Centre for the Indian Knowledge Systems  
Indian Institute of Technology Guwahati  
Assam, India**

In association with

**Bharatiya Govansh Rakshan  
Samvardhan Parishad (BGRSP)**



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# भारतीय प्रौद्योगिकी संस्थान गुवाहाटी INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

Dr. Parameswar Krishnan Iyer  
Officiating Director, IIT Guwahati

18 मई 2023



## कार्यवाहक निदेशक के संदेश

यह बहुत खुशी की बात है कि भारतीय ज्ञान प्रणाली केंद्र (सीआईकेएस), आईआईटी गुवाहाटी, भारतीय गोवर्धन संवर्धन परिषद, पूर्वोत्तर के सहयोग से आधुनिक जीवन और चिकित्सा विज्ञान (एन सी जी वी-2023) में गौ-विज्ञान का एक राष्ट्रीय सम्मेलन आयोजित करने की दिशा में आगे बढ़ रहा है। साथ ही "गौ-विज्ञान" ने अनादि काल से अनगिनत तरीकों से हमारे देश की सामाजिक-आर्थिक, स्वास्थ्य और कृषि प्रणालियों को आकार देने में महत्वपूर्ण भूमिका निभाई है। परिणाम इतने ज्वलंत हैं कि तेजी से बढ़ते उद्योग और प्रौद्योगिकियाँ भी गायों और उनके उत्पादों के महत्व को कम नहीं कर सकती हैं, चाहे वह चिकित्सा विज्ञान, मानव स्वास्थ्य, या हमारी धरती माता की सेवा में हो। इसके उपरांत, भारतीय समाज के लिए एक वरदान के रूप में गायों के सौंदर्य मूल्यों को बढ़ावा देने के लिए, सीआईकेएस ने दो दिवसीय सम्मेलन आयोजित करने का यह अवसर प्राप्त किया है, जो हमारे प्रमुख वक्ताओं, प्रस्तुतकर्ताओं और उपस्थित लोगों के साथ विचारों के आदान-प्रदान के माध्यम से हमें अपने अत्याधुनिक शोध के साथ-साथ खजाने योग्य ज्ञान को आत्मसात करने का एक सुअवसर प्रदान करेगा।

आईआईटी गुवाहाटी को एनआईआरएफ़ इंडिया रैंकिंग 2022 में अभियांत्रिकी में 7 वाँ और समग्र श्रेणी में 8 वाँ स्थान प्रदान किया गया है। क्यू एस वर्ल्ड यूनिवर्सिटी रैंकिंग के नवीनतम संस्करण के अनुसार, आईआईटी गुवाहाटी को 14 विषयों में विश्व के शीर्ष विश्वविद्यालयों में से एक के रूप में नामित किया गया है, जो बहु-विषयक शिक्षा और अनुसंधान को उजागर करता है। भारतीय ज्ञान प्रणाली केंद्र, आईआईटी गुवाहाटी एक अंतःविषय शैक्षणिक अनुसंधान केंद्र है जो पारंपरिक ज्ञान को बढ़ाने, एक



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Officiating Director, IIT Guwahati

स्थायी ज्ञान प्रणाली की सृष्टि और क्षमता निर्माण के लिए नए ज्ञान और कौशल का निर्माण करने हेतु प्रयासरत है।

मैं इस कार्यक्रम के सफल आयोजन पर आयोजक टीम और संयोजकों के प्रति उनके अथक प्रयासों के लिए अपनी कृतज्ञता व्यक्त करता हूँ, और मैं चाहता हूँ कि हम इस अवसर का पूरा लाभ उठाएँ ताकि हम समकक्षों के साथ मिलकर इस क्षेत्र में कार्य कर सकें, विशेषज्ञों से ज्ञान प्राप्त कर सकें, और हम नियोजित विभिन्न गतिविधियों और कार्यक्रमों में भाग लेते हुए आगे बढ़ सकें।

हमें आशा है कि यह सम्मेलन अत्यंत सफल और उत्पादक उपलब्धि से संपन्न हो।

डॉ. परमेश्वर कृष्णन अय्यर  
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प्राध्यापक, रसायन विज्ञान विभाग  
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## Message from the Chairman

18 May 2023

**Shri Sunil Mansinghka**

**Co-ordinator, Go-Vigyan Anusandhan Kendra, Deolapar, Nagpur, India**



सादर नमस्कार,

अत्यन्त हर्ष का विषय है कि भारतीय प्रौद्योगिकी संस्थान गुवाहाटी, भारतीय गोवंश की विभिन्न क्षेत्रों में उपयोगिता व वैज्ञानिक दृष्टि से महत्व को जन-जन तक पहुंचाने के लिए आगामी 20 और 21 मई 2023 को कार्यशाला का आयोजन कर रहा है।

कृषि प्रधान भारत में असम, अरुणाचल प्रदेश, सिक्किम, नागालैंड, मिजोरम, त्रिपुरा एवं, मेघालय राज्यों में जहाँ नखीमी, यूथों आदि मुख्य गोवंशीय नस्लें पायी जाती हैं। सिक्किम पूर्णतः जैविक राज्य घोषित है। माननीय प्रधानमंत्री जी ने पिछले ८ वर्षों से किसानों की आय दोगुना करना, भारत को आत्मनिर्भर बनाना, कौशल विकास, ग्रामीण अर्थव्यवस्था को मजबूत करना आदि कई संकल्प समाज के सम्मुख रखे हैं, जो प्रत्येक किसान, गो पालक परिवार द्वारा गोवंश पालन से ही संभव है।

गो-विज्ञान अनुसंधान केंद्र, देवलापार, नागपुर के माध्यम से भारत सरकार के साथ गोमूत्र कीट नियंत्रक (कृषि) के कई देशों के पेटेंट, गोमूत्र अर्क (स्वास्थ्य) के कई विषयों पर (विषाणु, कीटाणु नाशक, कर्क रोग की रोकथाम) पेटेंट लिए है।

हजारों गाँवों में पिछले 25 से 28 वर्षों में गोवंश आधारित विकास जबरदस्त तेजी से आगे बढ़ा है व किसानों की कमाई 4 से 10 गुना तक बढ़ी है।

उपरोक्त कार्यशाला में कृषि, पंचगव्य, मानव स्वास्थ्य एवं पशु चिकित्सा के लिए भारतीय नस्लो व अन्य जर्सी, होल्स्टीन, फ्रीशियन आदि से सेहत, ऊर्जा व अन्य उपयोगी उत्पाद आदि पर मंथन होगा।

सभी कृषि विज्ञान केंद्र, गौशालायें, किसान संगठन, व विभिन्न धार्मिक एवं सामाजिक संगठन इसमें सहभागी है।

उपरोक्त सभी कार्य भारत को पुनः सुजलाम सुफलाम बनाने के लिए मील का पत्थर साबित होंगे।

कार्यशाला सभी दृष्टि से पूर्ण सफल हो, निर्विघ्न सम्पन्न हो, यही प्रभु से प्रार्थना है।

आपके सभी सहयोगी प्राध्यापक और कार्यकर्ताओं को असंख्य मंगलकामनायें

विनीत

सुनील मानसिंहका



# भारतीय प्रौद्योगिकी संस्थान गुवाहाटी

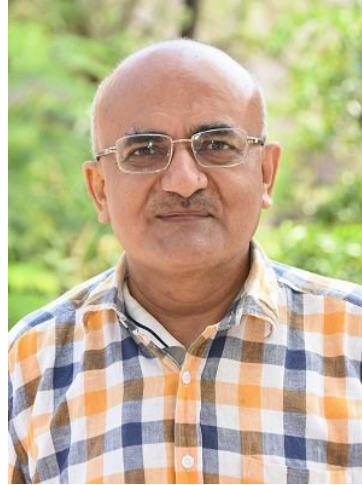
## INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

**From the desk of Chairman**

**18 May 2023**

**Prof. Uday S. Dixit,**

**Head, Center for Indian Knowledge Systems, IIT Guwahati**



I am feeling a sense of pride and pleasure in organizing the National Conference on Gau-Vigyan in modern life and medical science (NCGV 2023) that will serve as an excellent platform for bringing researchers, medical practitioner, formers, businessmen, social workers and young students together. All of them will brainstorm the ways to protect the cow-dynasty as well as utilize the cows and bullocks for sustainable and spiritual development goals. The conference is being organized in association with Bharatiya Govansh Rakshan Samvardhan Parishad (BGRSP), Guwahati. I am grateful to them for approaching the Center for Indian Knowledge Systems (CIKS) wholeheartedly for participating in this noble cause. Cows are an integral part of Indian society and are revered by millions of people as the mother and abode of gods. They should be protected from biocentrism point of view just to meet spiritual and cultural goals. From the viewpoint of their utility for our health also, no other animal can match them. I hope that this conference will stimulate the people for cow protection, breeding and sustainable utilization, while maintaining their religious sanctity and role of mother.

I welcome all the delegates to this conference as well as to visit CIKS at IIT Guwahati. The credit for the success of this conference should go to my colleagues, friends from BGRSP, volunteers and sponsors. I am grateful to all invited speakers and authors of contributory papers



for accepting our call for participation in such a short notice. It is just a beginning of our efforts and in future CIKS is planning to organize a number of such activities including workshops and training programs. Convenor of the conference Prof. Lalit M. Pandey will be in touch for providing information for upcoming events and also for gathering feedback. Let us hope for an enriching experience in this conference!



# भारतीय प्रौद्योगिकी संस्थान गुवाहाटी

## INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

**Message from the Convener**

**18 May 2023**

**Prof. Lalit Pandey**

**Head, Center for Career Development, IIT Guwahati**

**Center for Indian Knowledge Systems, IIT Guwahati**



I am delighted to extend my warm welcome to all the esteemed guests, delegates and attendees to the national conference on Gau-Vigyan in modern life and medical science (NCGV 2023) to be held at IIT Guwahati on May 20-21, 2023.

India, with its rich cultural heritage and deep-rooted traditions, has long revered cows as sacred animals. The significance of cows extends beyond their economic value, encompassing religious, environmental, and socio-cultural dimensions. This conference aims to shed light on the importance of cows in Indian society and explore the multifaceted dimensions of this relationship for sustainable development.

The two-day national conference on Gau-Vigyan aims to foster a collaborative platform for faculties, researchers, doctors/practitioners, and students from different streams like Ayurveda, Veterinary Science, and Medical Sciences. In addition, scholars from relevant science, engineering, and technology departments working in IITs, NITs, and other universities will be participating. A few small and medium enterprises working in the related areas would showcase their products. We believe that by exploring the scientific, social, and economic dimensions of

Gau-Vigyan, we can gain valuable insights, engage in meaningful discussions, and undoubtedly enrich our knowledge.

IIT Guwahati, located in the scenic heart of the northeastern region of India, provides the ideal setting for this conference. With trailblazing facilities and a vibrant academic atmosphere, the campus fosters intellectual growth and collaboration.

We are honoured to have distinguished speakers and experts from various fields who will deliver keynote addresses and lead discerning panel discussions highlighting the latest research and innovations in the field of Gau-Vigyan. The theme of the conference is quite broad, covering (i) Importance of cows in Indian History and Tradition; (ii) Management of Large Goshalas and Dairy Farms; (iii) Agriculture sciences; (iv) Chemical Science; (v) Veterinary Science; (vi) Healthcare Science and (vii) Advanced Technologies.

On behalf of the organising committee of this national conference, I acknowledge a heartfelt thanks to our Director, administration, and all the supporting members of IIT Guwahati for their valuable cooperation in the compassing of the conference. We sincerely acknowledge financial support from different funding agencies, including the Ministry of Ayush, the Science and Engineering Research Board, the Department of Scientific and Industrial Research, the North East Centre for Technology Application & Reach, the North Eastern Development Finance Corporation Limited, and the State Bank of India. We are also thankful to Dr. Naba Goswami (for Pt. Hemchandra Goswami memorial dinner), KaviKrishna Laboratory Guwahati, Zenith India Guwahati, Jaldhara & Co. Guwahati, Infinity Solutions Guwahati and Krrishna Enterprise Guwahati the generous support.

Have a fruitful, memorable, and pleasant stay!

With warm regards and best wishes,

Convener

IIT Guwahati



# Expert Talks



## Invited talks

Submission No	Expert Name	Affiliation	Title	Page No.
IL-001	Prof. Uday S. Dixit	IIT Guwahati	Importance of Cow Protection in Indian Culture	4
IL-002	Shri Sunil Mansinghka	Govigyan Anusandhan Kendra, Deolapar, Nagpur	Vrtaman Yug Me Govansh Ki Anirvaryata	5
IL-003	Dr. Hemen Kalita	Govt Ayurvedic College, Guwahati	Therapeutic Indication of Gau-Mutra (Cow's Urine) in Ayurveda With Special Reference to Cancer	6
IL-004	Dr. J P Borah	NIT Nagaland	Correlation between the Magnetic anisotropy and dipolar Interaction to controlled self heating Efficiency of Ferrite based Nanoparticles towards Magnetic Hyperthermia application	7
IL-005	Dr. Jyoti Kumar	IIT Delhi	Proposal of a framework for research on Gau Vigyan	8
IL-006	Prof. O. P. Singh	IMS, BHU, Varanasi	Recent Advances in the Management of Lifestyle Disorders WSR to Panchagavya	9
IL-007	Dr. Hari Krishan Pareek	Banaras Hindu University	Role of Gaumutra (cow urine) in the treatment of congenital Vitiligo: A case report	10
IL-008	Dr. Mamta Amit Mishra	Dirghayuh Treatment Centre, Kalyan (Thane), India	The Therapeutic Potential of Ghee in Snehapan: An Integral Component of Ayurvedic Detoxification and Holistic Healing	11
IL-009	Dr. Nandini Bhojraj	Govigyan Anusandhan Kendra, Deolapar, Nagpur	Successful Management of Gynecological disorders with Panchgavya Chikitsa- Successful Stories	12
IL-010	Dr. P. M. Kapale	PGIVAS, Akola	Cow urine distillate and Panchagavya Therapy (Cowpathy) in Human beings and Animals-A Review	13
IL-011	Dr. Amit Santosh Mishra	Dirghayuh Treatment Centre, Kalyan (Thane), India	Integrative- Ayurveda Panchagavya Yoga Therapy Approach for Sthaulya (obesity)	14
IL-012	Dr. Lalit M. Pandey	IIT Guwahati	Aahar and Yoga in Holistic Healthcare	15
IL-013	Prof. Virendra Kumar Vijay	IIT Delhi	Scientific Utilization through Research Augmentation-Prime Products (Panchagavya) from Indigenous Cows: SUTRA-PIC India Programme	16
IL-014	Dr. Shuchi Verma	Ramjas College, University of Delhi	Cow-manure - an undesirable bio-waste for both Remedial use and an economically Bio-synthetic booster.	17
IL-015	Dr. Suman Kumar Das	Lalita Krishi Vikas Anusandhan Kendra, Khajuraho	Viable Technological Approaches for Socio - Economic Development of Farming Community through Innovative Integrated Agripreneurship Model - "Gau Krishi Vanijiyan"	18

IL-016	Prof. Kadirvel Govindasamy	ICAR - ATARI, Zone VI, Guwahati	Conservation of indigenous cattle biodiversity for promoting natural farming in Northeastern hill region of India	19
IL-017	Prof. Debi Prasad Mishra	NITTTR, Kolkata	Experimental Study of a Novel Biogas Burner for Domestic Application	20
IL-018	Dr. Jay Dhariwal	IIT Delhi	Rethinking of our food choices for sustainable development	21
IL-019	Prof. Dhiraj H. Kankhare	Indigenous Cattle Research Cum Training Center, Pune	A sustainable Indigenous cattle farming approach of ICRTC: Strategies and Practices	22
IL-020	Dr. Nakambam Manoranjan Singh	KVK Dima Hasao, Assam	Role of Desi Cattle for sustainable & eco-friendly Agriculture crop production & promotion of organic & bio-fertilizer with special reference to Dima Hasao	23
IL-021	Dr. Dhruva Malakar	NDRI Karnal	Control of dangerous diseases of mastitis and metritis of cattle and buffaloes using mesenchymal stem cells as a regenerative therapy	24
IL-022	Prof. Sachin Kumar	IIT Guwahati	Understanding the quality of cattle milk: A proteomics view	25
IL-023	Prof. P. Irene Vethamoni	TamilNadu Agricultural University Coimbatore	Antimicrobial properties of natural spices and their effect on controlling diseases of dairy animals	26
IL-024	Dr. S K Jhirwal	Rajasthan University of Veterinary and Animal Sciences	Management of Blind Cattle in Gashala and Mitigation of Ocular Pain	27
IL-025	Prof. R S Chauhan	GBPUAT Pantnagar	Effect of Indigenous Badri Bull Urine on Immunity	28



NCGV-IL-1



## Importance of Cow Protection in Indian Culture

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### Abstract

Cow is considered a sacred animal in Indian culture. In several Hindu houses, there is a custom of offering first bread of the kitchen to the cow. Cow is treated as the mother and bull is considered as an embodiment of Dharma, i.e., right conduct. The close association of cow clan and human beings is not of recent origin. A glance at the Vedic literature reveals that cows have been the part of the Indian civilization for times immemorial. Sages living in the forest used to depend on the cow products and used to send the disciples for cow grazing in the jungle. In Chhandogya Upanishd, there is a story of Satyakama, the son of Jabala. He was handed over 400 cows and calves and ordered to come back for getting the knowledge of Ultimate God only after the number of cows and calves reached one thousand. Satyakama followed the instruction of his guru and was provided the first lesson about Ultimate God by the bull. As per Indian mythology, whenever there is an excess of sin on the Earth, the divine mother Earth goes to gods in the form of a cow to narrate her sufferings. It is clear that cow clan was much revered than other animals. Donation of cows was considered the highest form of the donation. Once Sage Chyvan was doing meditation insider the river. He got trapped in the net of fishermen. This news reached to king, who rushed to the spot and requested the sage to come to his palace, but Chyvan insisted that as he was caught by fishermen, they should be given a suitable price for their catch. King offered to give thousands of gold coins to fishermen, but Chyvan felt that he was being undervalued. Even the king offered half the kingdom as the price of the sage, but Chyvan told that even full kingdom was a lesser amount in exchange for him. King was dejected. Meantime another forest dwelling sage passed through that route. He suggested that fishermen should be given a cow in exchange of Sage Chyvan. To this proposal Sage Chyvan agreed. He said, “Only a cow can match the price of a Brahmin”. This shows the socio-economic importance of cow.

Sixteenth century saint and poet Tulsidas has mentioned the importance of cow at several places in Ramacharit Manas. It is mentioned that God came in the form of Lord Rama to protect reciters of Vedas, cow, gods and saints. In most places, cow is equated to *Dvija*, i.e., to people who are twice-born in the form of spiritual initiation. Many contemporary scholars of Indian culture feel that cow is as important as a highly qualified Brahmin, if not more. This indicates that Indian philosophy believes in biocentrism rather than anthropocentrism.

Any scientific research or action related to cows should not ignore the cultural aspects. Only economic considerations should not be the guiding principles of cow protection, but the cow clan should be protected mainly for its cultural importance. For the sake of better sustainability, economics of cow rearing can also be improved, but only as a secondary goal. Recently, some proponents of cows have suggested to employ genome for genetic modification of cows so they produce more female offspring than males. It is not a right approach and against the spirit of Indian culture. Instead Scientists and technocrats can focus on effective utilization of bullocks. The principle of “invention is the mother of necessity” should be followed. Some suggestions for the effective utilization of bullocks are as follows:

- Bullock carts can be revived for entertainment purpose. They can be used in sports and tourist spots for example as a transport vehicle in zoos.
- Bullocks can be used in forming with the help of ergonomically designed form implements.
- Bullocks can be used to run generators in the villages.
- The dung of bullocks can be used as fertilizer and biogas production.

Sustainability is not only economics. It includes social, environmental and cultural aspects too. It is high time that cow protection should be seen in that perspective.

**Keywords:** Cow, Mythology, Vedic culture, Biocentrism.





NCGV-IL-2



## Inevitability of Cow Dynasty in The Present Era

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### Abstract

We are all citizens of agricultural India, more than 4.0 lakh farmers drowning in debt were forced to commit suicide. Half of the districts of the country are suffering from severe water scarcity (dark zone). Other survivors are also moving in the same direction. It is the moral responsibility of all of us to keep farmers and agriculture alive in such adverse situations, to make them truly advanced self-reliant (Sustainable Agriculture). Otherwise, “Annadata Sukhi Bhava” will only remain in words. The Cow Science Research Centre, Devlappar, Nagpur has taken up the task of doing the same because the service of the cow dynasty makes the impossible possible. The centre has played an important role in promoting cow dung and cow urine. The declaration "Gomaya Vaste Lakshmi, 'Gomutra Vaste Ganga," was not imaginary. Insecticide from cow dung, pest control from cow urine, nectar from dung, cow urine, amrit pani from jaggery and gokripa amritam have started a revolution in agriculture.

The importance of cow dung, cow urine, milk-curd, ghee-buttermilk of Indian native cow dynasty is in almost all the texts of ayurveda, committed to restore utility to society. Different types of Ayurveda medicines of panchgavya made from cow's milk, curd, ghee, cow urine and cow milk. Which have also proved useful for the current transition period. Therefore, the best quality curd, buttermilk, butter, ghee are being made from the milk of our cows, whereas the products of foreign cattle are poisonous. Traditional veterinary medicine is also being successfully done with panchgavya and other ayurvedic medicines, the father of which was “Rishi Shalihotra”.

**Keywords:** Panchgavya, Cow science, Agriculture.







NCGV-IL-3



## Therapeutic Indication of Gau-Mutra (Cow's Urine) in Ayurveda with Special Reference to Cancer

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### Abstract

Gau-mutra (cow's urine) in Ayurveda is described as an effective substance with many medicinal values. It is an ingredient of Panchagavya along with the other major substances obtained from cow. Ayurvedic practitioner use Gau-mutra (cow's urine) for treating several diseases as described in text. Thorough extensive research shows cow's urine is identified as bioenhancer of the activities of anti-cancer drugs. In the last few years in clinical practices we saw Gau-mutra therapy shows promising result for treatment of cancer. In Ayurveda it is described that Gau-mutra can pacify Vata and Kapha dosha. So Gau-mutra can be very effective in the management of the symptoms of Cancer. This review highlighted the anticancer activity of Gau-mutra as per Ayurveda and it's future strategies for use of this excellent product of Gau-mata. Moreover, new research show's cow's urine has many antioxidant properties which also indicate anticancer properties. So an attempt will have made to present the therapeutic indication of Gau-mutra (cow's urine) in the management of Cancer.

**Keywords:** Gau-mutra, Cancer, Ayurveda.





NCGV-IL-4



## Correlation between the Magnetic anisotropy and dipolar Interaction to controlled self-heating Efficiency of Ferrite based Nanoparticles towards Magnetic Hyperthermia Application

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### Abstract

Hyperthermia is one of the cancer therapy which is considered to be an artificial way of increasing the body tissue temperature by delivering heat obtained from external sources to remotely destroy cancerous cells or prevent their further growth. The relevant physics in Ferrite-Based Magnetic nanoparticles and their response to the heat generation validates the efficacy for the approach. In single-domain superparamagnetic nanoparticles the magnetic anisotropy and dipolar interactions play an important role in modulating the energy barrier and hence heat dissipation by the magnetic nanoparticles. Thus, understanding the physics of magnetic nanoparticles and controlling their magnetic properties represent hot topics not only for fundamental studies but also for technological applications. Thus, the tuning of the Magnetic hyperthermia response of the nanoparticles means control of the MAE and dipolar interaction. In this talk, I will first introduce the basic mechanism behind the magnetic hyperthermia and will discuss the effect of dipolar interaction and magnetic anisotropy to control self heating response in reference to the recent finding of ferrite based magnetic nanoparticles. This lecture will combine insights into fundamental physics of magnetic nanostructures along with recent research advances in their application to magnetic hyperthermia.

**Keywords:** Cancer therapy, Self-healing, Cow science





NCGV-IL-5



## Proposal of a framework for research on Gau Vigyan

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### Abstract

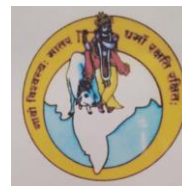
The term ‘Gau’ in Sanskrit literature has been used in multiple senses, though there seems to be a connection between these senses. For example, ‘Gau’ has been used to imply mother, earth, goddess of knowledge, sun, cow etc. in ancient Indian literature. In this paper, the term ‘Gau’ is used primarily in the sense of ‘the cow’ though it continues to support multiple connected meanings of the term ‘Gau’. In the traditional Indian knowledge system, the Indian cow has not just been seen as an animal having potential utilitarian value for human beings but much more than that. In atharvaveda (Kand 9, Sukta 7), the cow has been described as an embodiment of the creation itself. In Rigveda (Mandala 6, Sukta 28), the cow has been described as a source of physical, mental and spiritual well being. However, In modern scientific literature, most cited research on cow has been reported in contexts of nutritional value of cow’s milk compositions (Singhal S, Baker RD and Baker SS, 2017), cow’s meat production (Faverdin, P et al., 2022), microbiological and chemical studies on cow dung (Iwuozor, K O, et al. 2022; Jain, M et al. 2022) etc. It is noteworthy that these research areas form a small fraction of the value of ‘Gau Vigyan’ which the traditional Indian knowledge systems have discussed. It is argued in this paper that therefore there is a need to expand the scope as well as methodological purview of the modern scientific research on ‘Gau Vigyan’. This paper takes the position that modern scientific methods need to reconsider the ‘reliability’ and ‘validity’ measures of the ‘gau vgyan’ and presents a framework which can be considered for further research in the domain of ‘Gau Vigyan’. The framework presents a mixed methods approach where the physical observable phenomena can be ‘mixed’ with the non-physical and non-observable though existent phenomena within the acceptable philosophy of modern science.

**Keywords:** Gau vignan, Yagya karma, Traditional knowledge.





NCGV-IL-6



## Recent Advances in The Management of Lifestyle Disorders WSR to Panchagavya

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### Abstract

The source of *Panchagavya* is from indigenous cow that has many health benefits including common lifestyle diseases like diabetes, obesity, psoriasis, inflammatory bowel disease, irritable bowel syndrome. *Panchagavya* includes cow milk, urine, dung, ghee and curd. These cow products are used alone or in combination with medicinal plants for treating different diseases. Each one has its own PH value, properties and medicinal values with specific indications and contraindications. This review paper has highlighted the clinical uses of *Panchagavya* in lifestyle related diseases. Human intestinal flora contain largely beneficial flora that help in maintaining health, immunity and digestion. Dysbiosis in this flora has been found to be the cause many metabolic diseases. Cow curd and buttermilk has been found to work like probiotics (live bacteria) that help to maintain the intestinal flora essential to maintain health. Yakult is commonly available probiotics in the Indian market. Many Ayurvedic preparations including *parpati kalpana* (Herbomineral drug) uses fresh cow dung as the base for the drug preparation. This cow dung is rich in cow bile, beneficial micro-organisms predominantly good bacteria and yeast. This *parpati* preparation is mainly indicated in IBS, IBD, tuberculosis and dysentery like infectious and inflammatory diseases. In the bio purification of the body, *shodhan* therapy is used in Ayurveda, which is a three step process. In first step of *shodhan* therapy (*Poorvakarma*), medicated cow ghee is used for internal use according to disease. This internal uses has been found to have significant effect in reducing the lipid dysfunction after proper *shodhan*. (*Samyak shodhan*). *Panchagavya* has been tremendously used in Ayurveda for the health benefits.

**Keywords:** Panchagavya, Probiotics, Parpati, Shodhan, IBS.





NCGV-IL-7



## Role of Gaumutra (Cow Urine) in The Treatment of Congenital Vitiligo: A Case Report

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### Abstract

Vitiligo is a disorder of skin pigmentation. 1% of world's population suffers from vitiligo. Vitiligo is a common autoimmune pigmentary disorder in which patches of skin loses their colour. The white patches appear on the skin owing to melanocyte deficit. Melanin which imparts pigment to skin requires the amino acid tyrosine for its synthesis. Melanin synthesis start with the conversion of tyrosine to dyhydroxyphenylanine (DOPA) by the action of tyrosinase, key regulatory enzyme. Action of this enzyme is copper dependent. Vitiligo can be correlated with Shvitra in Ayurveda. It's both congenital and acquired type. Majority of cases are acquired and congenital vitiligo is rare with few reported cases. According to Acharya Charaka, it is due to the sins committed in the previous birth and the unhealthy diet of this birth (Charaka Samhita Chi. Sthan ch. 7/177). We report a case of congenital Vitiligo in 8 year old child. He had a hypopigmented large patch from the fore head to the bottom of mouth. Patient treated with Ayurvedic management on the consent of his father, in which he was given oral medicine along with local application of Kalmeshi powder (*Psoralea corylifolia*) with fresh Indian breed cow urine (Gangateeri cow). Cow urine has been described as Yogvahi (Bioenhancer) in Ayurveda. Holy basil seeds (Tulasi seeds) and Indian gooseberry (Aamalaki powder) given in oral medicine. Holy basil enhances copper nano particle synthesis and Psoralen is active principle in Kalmeshi. Both increase the process of melanogenesis. After 7months of the treatment patient developed completely pigmentation in hypopigmented patch. The use of Indian cow urine has proved to give encouraging result in this case.

**Keywords:** Gaumutra, Congenital vitiligo, Cow.





NCGV-IL-8



## The Therapeutic Potential of Ghee in Snehapana: An Integral Component of Ayurvedic Detoxification and Holistic Healing

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### Abstract

This paper delve into the therapeutic potential of ghee, a vital component in the Ayurvedic practice of Snehapana, and its synergistic role in promoting holistic healing and well-being. As the global community increasingly seeks integrative and alternative healthcare approaches, exploring the significance of ghee in Snehapana within the context of contemporary medicine becomes essential. Snehapana, an essential aspect of Snehana (oleation) therapy, is a method of oral administration of medicated ghee. In this context, ghee, derived from indigenous breed of cow's milk, is particularly esteemed for its unique properties. As described in the *Cāraka Samhitā*". Snehapana using ghee is utilized as a preparatory measure for Panchakarma and its role in enhancing digestive fire and pacifying imbalances in the body.

Panchagavya, a unique blend of five cow-derived products, and Panchakarma, a comprehensive detoxification and rejuvenation therapy. Panchakarma, as detailed in the "*Aṣṭāṅga Hṛdayam*", is a comprehensive detoxification and rejuvenation therapy that focuses on eliminating toxins, balancing the three doshas (Vata, Pitta, and Kapha), and strengthening the body's innate healing mechanisms. Panchakarma's five primary procedures—Vamana, Virechana, Basti, Nasya, and Raktamokshana are emphasized in the verse" (Panchakarma Pradhanena Doshaan Samshodhayet Sada), indicating the significance of these therapies in purifying the body. Ghee has antioxidant and anti-inflammatory properties which contribute to its therapeutic benefits in Snehapana. These properties are attributed to the presence of bioactive compounds such as conjugated linoleic acid and vitamins A, D, E, and K.

The synergistic potential of ghee in Snehapana, a important component of Panchagavya, and Panchakarma for treating various ailments, including chronic diseases, stress-related disorders, and immune system imbalances has been widely in ancient Sanskrit verses. Through recently carried out therapies based on these ancient concepts are presented as case studies, we aim to shed light on ghee's potential for enhancing physical, mental, and emotional well-being in a global context. Furthermore, emphasis on the importance of interdisciplinary collaboration among traditional and modern medical practitioners in integrating ghee-based Snehapana and other ancient healing modalities into contemporary healthcare systems are also discussed. In order to strive for achieving optimal health outcomes for diverse populations, understanding and embracing the wisdom of Ayurveda can contribute significantly to the development of more personalized, holistic, and effective treatment strategies.

**Keywords:** Indigenous Cow's Ghee, Snehapana, Snehana, Panchagavya, Panchakarma, Ayurveda, holistic healing, *Cāraka Samhitā*, Detoxification, Doshas, Oleation Therapy, Cardioprotective, Neuroprotective.





NCGV-IL-9



## Successful Management of Gynecological disorders with Panchgvyva Chikitsa- Successful Stories

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### Abstract

Stri Rog in Ayurveda can majorityly termed for gynecological disorders in conventional science. Many times hormonal imbalance leads to various diseases e. g. fibroids, PCOD, CA breast, CA uterus, CA overy endometriosis etc. Panchagavya is the unique gift of Ayurveda that offers miraculous results in multiple challenging such type of disorders for which there are certain limitations for treatment in contemporary science. Moreover, medicines derived from Panchgvyva plays an important role not only curing, preventive and rehabilitation aspects. The prime aim of this paper is to study the efficacy of various Panchgvyva formulations in such challenging situations. These Medicines are prescribed orally as well as through various panchakarma procedures. Nowadays, the prevalence of these diseases are increasing day by day due to current fast and stressful lifestyle and it is need to hour to adopt these Panchagvyva formulations in a easy, effective and safer manner. Such disorders can be easily prevented with the help of such kind of holistic treatment. In Kamdhenu panchagavya ayurvedic chikitsa Kendra these formulations are routinely advised for such patients.

**Keywords:** Panchgvyva, Gynecological, Ayurvedic chikista, PCOD, Hormonal imbalance.





NCGV-IL-10



## Cow urine distillate and Panchagavya Therapy (Cowpathy) in Human beings and Animals-A Review

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### Abstract

Panchagavya' is a medicinal gift to the mankind and animals from our ancestors which is the product of five products from the cow namely cow urine, milk, dung, ghee and curd. Cow urine is also used as therapy for various ailments of human being or purifier since ancient time. Many curable and incurable diseases have been treated by Cow urine which is constituent of Panchagavya in various types of aurvedic preparations which is being mention in many ancient holy literatures. Cow urine and dung has been used successfully treating various skin diseases, stomach diseases, heart diseases, kidney ailments, Tuberculosis, antidote for obesity, antifatulent, ascitis and many other diseases {CharakSamhita sutra sthan 1/102 and AstangSamgraha sutra sthan 6/141-143(Vidyanath,2006)}. Recently it has been proved that it is very curative in treating and curing blood pressure, blockage in arteries, arthritis, diabetes, relieving Kaphaja and Vataja disorders, those caused by Krimi (worms), Meda (excessive adiposity), Visha (poisoning), Gulma (gaseous swelling of the abdomen), Arsha (piles), skin diseases including leprosy, psoriasis, eczema, Shopha (inflammation), Agnimandya (loss of appetite), pallor, heart disease, cancer, thyroid, asthma, prostrate, fits, AIDS, piles, migraine, ulcer, gynecological problems, ear and nose complications and several other diseases if taken either in application(rubbing to skin) form or oral medication form (Kaushik *et al.*;2015).

**Key words:** Panchagavya, Cow urine distillate, Cowpathy.





## Integrative- Ayurveda Panchagavya Yoga Therapy Approach for Sthaulya (obesity)

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**Theme name:** National conference on “Gau-Vigyan in Modern Life and Medical Science”

**Title of abstract:** Integrative- Ayurveda Panchagavya Yoga Therapy Approach for Sthaulya (obesity)

**Purpose:** The global epidemic of obesity is the most significant contributor to ill health. obesity is associated with diabetes mellitus, coronary heart disease, hypertension, PCOS, knee osteoarthritis, cancer, and sleep-breathing disorders. Obesity is defined by a BMI (body-mass index weight) divided by the square of the height of 30 kg m(-2) or greater. This does not consider the morbidity and mortality associated with more modest degrees of overweight and the detrimental effect of intra-abdominal fat

**Methods:** In Ayurveda, Atisthaulya (Obesity) is excessive accumulation of Meda (fat/adipose tissue) and Mamsa (flesh/muscle tissue) which tend to flabbiness. In Ayurveda, it is Santarpanottha Vikaras (disease due to consumption of excessive calories) the cause is Medodushti (disorders of fat metabolism). Gomutra Niruha Basti, part of samsodhana karma eradicates doshas (Humors) from the body. Gomutra is Deepana, Lekhana, Amapachana, Malshodhak. It is used in Virechana and Basti. Go griht is employed in Vamana. obesity hinders any kind of physical activity from initiating and adhering specific form of physical activity Yoga is a way of life that includes changes in mental attitude, and the practice of yoga postures (asanas), breathing practices (pranayama's), and meditation. Different chair yoga techniques and breathing practices (pranayama's) can be performed while seated and are less challenging for physically inactive. Hence Integrative approach was planned to see the combined effect on obesity.

**Results:** Statistically, significant relief was found in weight reduction ( $P < 0.001$ ), and body mass index (BMI) ( $P < 0.01$ ). There was an improvement in the stress questionnaire by 20%, quality of life by 14%, reduction in blood pressure in hypertensive with obesity by 17%, reduction in HbA1c in obesity with diabetes by 2 units mmol/mol, and improvement in PCOS questionnaire 50% (PCOS with Obesity patients).

**Conclusion:** These results prove the impact of Integrative Ayurveda, Panchagavya, and Yoga Therapy in the management of Sthaulya.

**Keywords:** Ayurveda, Panchagavya, Yoga, Obesity



NCGV-IL-12



## Aahar and Yoga in holistic Healthcare

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### Abstract

Pancha Kosha are considered as five boundaries to be crossed for the self-realization. Annamaya Kosha is directly and most influenced by Aahar (Food), which further percolates to rest of Kosha in varying intensity. Therefore, the selection of food directly impacts our physical and psychological health. Yoga practices enable to wander through all Koshas one by one.

It is worth mentioning that the vicinity of cows and cow products immensely help in Yoga practices. The recent practice of cow cuddling is a an example to that effect; cuddling of cows is considered contributes towellness trend and helps to overcome depression and anxiety. Considering the popularity of this technique, it should be scientifically investigated; it is not a good science to reject a popular hypothesis calling it pseudo-science without proper investigation. As we know that psychological disorders are regulated by various proteins, thus structural and functional changes of the relevant proteins may give us better insights.

The impact of raw, boiled and sweetened milk on practice of Yoga and health is also well-known. This also highlights the role of biochemical changes of key constituents e.g. proteins. This talk will try to unfold the link between Aahar and health, emphasizing the insights of biochemical pathways.

**Keywords:** Yoga, Healthcare, Pancha kosha.





NCGV-IL-14



## Scientific Utilization through Research Augmentation-Prime Products (Panchagavya) from Indigenous Cows: SUTRA-PIC India Programme

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### Abstract

Cowpathy is a treatment based on products obtained from Indigenous cow as used in Ayurveda. The ancient Ayurvedic literature (*Vir Charak Samhita, Sushrut Samhita, Gad Nigrah*) suggests a number of pharmacological applications of Prime Products from Indigenous cows such as in treatment of leucoderma, hyperlipidemia, arthritis, renal disorders, dietary disorders, gastrointestinal tract disorders, acidity, asthma, diarrhoea, dysentery, Cancer, diabetes, blood pressure, asthma, psoriasis, eczema, ringworm, itching, heart attack, blockage in arteries, fits, gynaecological problems, ear and nose problems, etc.

Though many *Vaidyas* and practitioners are using Prime Products from Indigenous cows for various treatments, there is not much scientific studies and research on the same. Cow urine and its distillate is being used by Ayurveda practitioners throughout the country. However, the scientific information is lacking regarding active principle, batch to batch variation, seasonal variations, urine collection time and its effect, effect of fodder and differences/similarities among the urine of other cattle. Thus, the research proposals under this theme should undertake detailed scientific investigation of chemical profiling, identification of bioactive principle responsible for enhancing activity of antibiotics and anticancer drugs, and other medicinal properties of Prime Products from indigenous cow from modern perspective.

It is believed that cow dung and urine are rich in microbial communities and can therefore be investigated for their bio-pesticidal values. Farmers have traditionally carried out composting of animal manures but with rudimentary methodology. Therefore, selecting efficient method(s) for management of livestock waste and generate quality compost is essential in today's scenario. Also investigating the microbial community dynamics during the process of composting of dung from different cattle is pivotal in enhancing the process and developing standards for this biotechnological process. The project proposals submitted under this theme, should aim to perform scientific investigations of role of Prime Products from Indigenous cows on plant growth, soil health and providing immunity in plant system, their application as organic manure and bio pesticide in agriculture, among others uses.

**Keywords:** Bio-pesticides, Agriculture, Cowpathy, Ayurveda.





NCGV-IL-15



## Cow-Manure - an Undesirable Bio-Waste for Both Remedial Use and an Economically Bio-Synthetic Booster

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### Abstract

India is one of the huge producers of bovine animal and from them cow squander explicitly which are bounteously available over the country. Cow excrement is toxic, extremely unsafe, perilous, destructive, mutagenic or even harmful pathogenic in nature. The toxins out of cow manure incorporate strong, radiating putrid gases and fluid run off containing perilous dangerous foreign substances like (dioxins and chlorophenols and arsenic), microorganisms and vaporous contagions (ozone depleting substances, NO<sub>x</sub>, SO<sub>x</sub>, methane and higher hydrocarbons). The noticeable qualities of Cow manure have restorative benefits. Therapeutic advantages can be gathered from cow manure like antimicrobial particularly against bacterial and hostile to contagious impacts. Bioremediation of drugs, pesticides, and petrochemicals with Gomeya /cow waste has been laid out. It fills in as a skin tonic and viable in treating psoriasis and dermatitis. The combinations of squashed neem leaves and cow waste aides against bubbles and intensity rashes.

The immense number of bacterial species can likewise be confined and described from cow compost with various morpho-biochemical boundaries. Anaerobic growth like (Neocallimastigomycota), Eupenicillium bovisomum, another species from dry cow fertilizer has additionally been detached. Cow excrement-based Home-grown mosquito repellent, natural sunscreen specialist (Sun Defensive). Natural and mineral synthesis of Gomeya (cow compost) from Desi and crossbred cows' similar review were accounted for. The other medicinal measures are combinations of a portion of the worth-focusing on items incorporate bio-plastics, bio-materials,  $\alpha$ -cellulose, mash, paper and card sheets for reasonable bundling, bio-gas, bio-oils and maturation items like ethanol, bio-treating the soil and bio-composts (N-P-K), nano-cellulose and MFC, microbial items (microorganisms and chemicals), enacted carbon, and fillers, blocks, silica, ceramics, and silicon-based semiconductors. This survey examines about the accessibility of the bio-squander cow compost, degree of wellbeing perilous contamination, removal options, the current customary therapeutics, the separate restorative property of cow manure and monetary double-dealing of this priceless normal bio-items to a horde of bio-items for cultural use.

**Keywords:** Bio-Waste, Cow-Manure, Fertilizer.





NCGV-IL-0115



## Viable Technological Approaches for Socio-Economic Development of Farming Community through Innovative Integrated Agripreneurship Model - Gau Krishi Vanijyan

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### Abstract

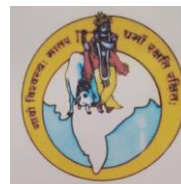
During the crucial pandemic (COVID19) period it gives us an opportunity to revisit our developmental process, in general, and agricultural practices across the globe, in particular. Above 58% off Indian population, contributing 19% to our GDP, support our economy through agriculture and allied sectors. An integrated approach of "Lalita Krishi Vikas Anusandhan Kendra", Khajuraho envisaged Livestock based integrated farming system, called "Gau Krishi Vanijyam"<sup>TM</sup> is infact a Holistic Approach of Modular Integrated Farming System Thriving On Livestock Integration On Mutualism along with Integrated Natural Farming edged with Smart & Reliable Marketing of Traceability (Farm to Fork). It's therefore a Holistic System to produce Complete Agripreneurs, comprising A Complete Livestock Breeder, Smart Farmer and an Agile Entrepreneur, thus, this model is not only sustainable and viable but also leads to Natural, Healthy and Nutrient Food with increased Quality, Productivity and Profitability. "Gau Krishi Vanijyam" effectively address Integrated Waste Management, Integrated Pest Management incorporated in Sustainable IFS model. Beside, Multi Crop Farming of various Cereal and Pulses, Diverse Horticulture crops like HDP Integrated Fruit Orchards, Multilayer Indian/ Exotic Vegetables, Integrated Fodder, UHDP Nutritional Garden, Ornamental/ Medicinal Crops, Agroforestry Floriculture, Apiculture, Hydroponics, Mushroom etc. empowered with Cyclic Livestock Integration (Buffaloes, Indigenous Cows, Goat, Kadaknath, Country Chicken, Ducks, Japanese Quails, Guinea Fowls, Turkeys, Pigeons, Rabbits and Fishery).

**Keywords:** Agricultural, Farming, Cow dung.





NCGV-IL-16



## Conservation of indigenous cattle biodiversity for promoting natural farming in Northeastern hill region of India

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### Abstract

The northeastern hill region has been in focus for its high biodiversity and this region has been a priority for conservation of agriculture and natural farming. The reasons for conservation of cattle resource are economic potential, scientific use and cultural interest for particular population/species. The aim of cattle conservation is to maintain biodiversity because removal of single species can affect the functioning of global ecosystems. Habitat preservation is one of the best ways to conserve biodiversity. In situ conservation strategies enable live populations of cattle to be maintained in their adaptive environments. The present evaluation of different breeds and breed crosses is being done only under intensive management system. A number of native breeds, strains or varieties are, or may be, in danger of genetic dilution through indiscriminate crossbreeding with exotic breeds. Such native breeds should be identified, so that they can be evaluated before this process leads to their essential loss. Some native breeds are in danger of losing genes for high production because high-performing animals are withdrawn from breeding populations for use in units of high production. For conservation of indigenous cattle, community participation, institutional support mechanism, policy makers are highly required for conservation of native cattle besides conserving farm ecology, economics and sustainability in natural farming. Documentation and conservation of native cattle is urgently warranted for promoting natural farming in northeastern region of India.

**Keywords:** Cattle biodiversity, Farming, Sustainability.





NCGV-IL-17



## Experimental Study of a Novel Biogas Burner for Domestic Application

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### Abstract

In this study, a novel biogas burner, designed and developed indigenously for domestic application is investigated experimentally. In this burner, a swirling bio gas and air mixture is produced in air aspirated premixing tube to stabilize a swirling flame on the burner top. Efforts are made to avoid flashback problem in this burner. As this swirling flame is stabilized easily over a wide range of power level without use of smaller ports as being in conventional burner and hence it incurs least pressure loss in this burner. The effects of loading height, pot diameter, power level and loading weight on the thermal efficiency and emission levels are investigated and reported in this paper. On variation in loading height from 20 to 50 mm, maximum thermal efficiency of 61 % at power level of 5 kW is observed to occur at 30 mm which is quite higher than the existing burner. On reducing the pot diameter, low thermal efficiency was recorded while on increase in loading weight from 5 kg to 15 kg of water, a slight improvement in thermal efficiency is also observed. On optimization of loading height and weight, low NO<sub>x</sub> as low as 3.4-7 ppm at 15 % O<sub>2</sub> level correction was observed at different power level between 5, and 18 kW respectively.

**Keywords:** Biogas, Cow dung, Cow science.





## Rethinking of our food choices for sustainable development

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### Abstract

Goal 13 of the UN sustainable development goals suggests urgent action to combat climate change. Climate change is leading to hotter temperatures, more severe storms and increased droughts among other things. Greenhouse gases (GHGs) blanket the earth and trap the sun's heat, which leads to global warming and climate change. 35% of the GHG emissions come from food production. Beef production and consumption is the largest contributor to the GHG emissions from food production resulting in 25% of the total emissions from it [1]. This paper reviews the existing literature on the measurement and mitigation strategies for the GHG emissions from beef eating. Poore et al [2] conducted a large scale meta-analysis of food system impact studies and found that the maximum greenhouse emissions, including methane, occur from beef with a global average of 49.89 kg of greenhouse gases released per 3.5oz of protein whereas the vegetarian options like grains and nuts emit as low as 3 kg. Kustar and Patino-Echeverri [3] compare the environmental impacts of vegan and vegetarian diets vs. an omnivore diet. They find that the consumers can reduce the land use, water use and GHG emissions between 87-96% by choosing a vegetarian burger in place of a beef patty. They found the results to be robust to the uncertainties associated with various forms of beef production. Clune et al [4] present the outcome of a literature survey of GHG emissions for different food categories from LCA studies. A meta-analysis of the LCA studies for fresh vegetables, fresh fruits, staples, dairy, non-ruminant and ruminant livestock indicates that fruits, vegetables and grains have the lowest impact and the meat from ruminants has the highest impact. This body of work can help in optimizing a healthy diet from an environmental sustainability perspective. Girod et al [5] study the effect of changes in consumption choices within the five main consumption categories of food, shelter, travel, goods and services. The lower GHG consumption options face the obstacles of conflicting preferences, higher complexity or higher costs. Changing human behavior towards environmentally benign dietary alternatives presents many challenges. Meat consumption is a part of the food culture in many societies in the world. They suggest less but varied meat diets in place of meat free solutions for them to be accepted by the consumers. Health should be the guiding principle in shifting consumer behavior towards a more sustainable diet.

**Keywords:** Sustainable development, Greenhouse gases, Global warming

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NCGV-IL-19



## A Sustainable Indigenous Cattle Farming Approach of ICRTC: Strategies and Practices

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### Abstract

In India, the population of Indigenous cattle breeds has declined significantly in recent decades. For instance, the population of the Sahiwal breed, which was around 17 million in the 1960s, has decreased to around 2 million in recent years. Similarly, the population of the Gir breed, which was around 1 million in the 1960s, has decreased to around 300,000 in recent years. The use of IVF and ET technology can be a valuable tool for the conservation of Indigenous cattle breeds. By promoting the use of these technologies, we can ensure the preservation of the genetic diversity of Indigenous cattle breeds and promote sustainable agricultural practices. The non-descript cattle population in India, also known as the 'mongrel' population, consists of a variety of indigenous cattle breeds that are often low-yielding and have poor genetic potential. These breeds are often kept for draught purposes, as well as for their milk and meat production. In recent years, there has been a growing interest in the upgrading of non-descript cattle populations by using high-yielding indigenous cattle breeds. The upgrading of non-descript cattle populations can be achieved by crossbreeding with high-yielding indigenous cattle breeds like Gir, Sahiwal, and Red Sindhi. These breeds are known for their high milk yield, heat tolerance, and disease resistance, making them well-suited for the Indian climate and environment. By crossbreeding non-descript cattle with high-yielding indigenous breeds, the genetic potential of the non-descript cattle can be improved, leading to increased milk production.

Sustainable Indigenous cattle farming practices that involve conservation breeding, milk processing, cow dung and urine processing, energy production using solar and biogas technology, mechanisation, and IVF technology can contribute significantly to the conservation of Indigenous cattle breeds, improve food security, and enhance rural livelihoods.

**Keywords:** Sustainable, Cattle farming, Agriculture, IVF.





NCGV-IL-20



## **Vermicomposting- An eco-friendly, economic viable, socially acceptable approaches for sustainable Agri-Horticulture crop production and soil health improvement**

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### **Abstract**

Vermicomposting is the process of turning organic farm waste or animal manure into nutrient-rich compost that improves agri-horticulture crop yield. In agriculture, soil earthworms are crucial because they consume and release castings that help to breakdown dead organic waste. In India, most of the crops are produced during Kharif season, on which above 90% of budget allocated is spent on fertilizer subsidies. Cow dung is an effective alternative to chemical fertilizers for enhancing productivity in sustainable way with better soil health. Thirty crores cattle population in India produce approx. 3 million tonnes of cow dung which can be utilized for production of eco-friendly vermicompost. However, due to increase in population and greater demand of food, chemical fertilisers, are being introduced into the soil, disrupting its physiochemical properties. Thus, using vermicomposting as an alternative to agrochemicals can improve soil organic carbon, nutrients, cation exchange ability, microbial biomass carbon, microbial and enzymatic activities.

**Keywords:** Cow dung, manure, vermicompost, Eco-friendly



## Control of dangerous diseases of mastitis and metritis of cattle and buffaloes using mesenchymal stem cells as a regenerative therapy

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### Abstract

Mesenchymal stem cells (MSCs) are a new herald and elixir to cure mastitis and metritis in livestock species. The farmers of our country are facing huge economic losses due to these dangerous diseases in livestock. Mastitis is an inflammatory condition in the mammary gland caused by many bacterial species. Similarly, metritis is also a uterine inflammation caused by many bacterial species. Drastically reduce milk production, lower fertility, and high treatment costs resulting in huge economic losses for farmers. Mastitis and metritis are generally treated with antibiotics that caused antibiotic resistance bacteria in livestock. Even the antibiotic residues are coming through milk which is harmful to human beings and animals. Here, we report an alternative regenerative therapy using mesenchymal stem cells derived from umbilical cord blood (UCB-MSCs). These MSCs are immunomodulatory, and anti-inflammatory repairing damaged tissue faster and curing the animals completely within a short period of time. The aim of the present study was to explore the treatment of mastitis and metritis using UCB-MSCs in bovine. MSCs were isolated from UCB during the delivery of a cow and, cultured, and characterized using alkaline phosphatase, immunostaining, staining, and RT-PCR. The MSCs were directed differentiation into osteocytes chondrocytes, neurocytes, and adipocytes lineages for the authenticity of MSCs. In the experiment, ten mastitis cows were taken in a group of antibiotics treatment. Similarly, 10 metritis cows were taken in each group-fresh MSC, cryopreserved MSCs, and extracellular vesicles (EV) in a 2 ml DPBS medium injected locally and intravenous (IV). Milk Somatic Cell Count (SCC) was significantly decreased ( $P < 0.05$ ) in all MSCs and EV groups compared to the antibiotic group. The cytokine genes expression study was found to enhance significantly ( $P < 0.05$ ) in IL-10, cathelicidin, cystatin, lipocalin 2, angiopoietin, and reduction in IL-6 in all MSCs treated groups compared to antibiotic groups. In metritis, the cervical vaginal fluid study of Polymorphonuclear (PMN) cells observed a significant reduction ( $P < 0.05$ ) in all the groups of MSCs. The cytokine gene expression was increased significantly ( $P < 0.05$ ) in anti-inflammatory cytokine and reduced in pro-inflammatory cytokine (IL6) in all MSCs treated cows. The cows suffering from mastitis and metritis were cured completely and permanently by MSCs as a regenerative therapy. It may be concluded that UCB-derived MSCs characterization and curing of the mastitis and metritis of bovine as a regenerative therapy. The farmers of our country will get highly benefited from this present study as stem cell technology is a very simple, easy, cost-effective reliable elixir for livestock.

**Keywords:** Cattle, Mastitis, Metritis, Mesenchymal stem cells, Umbilical cord blood.



NCGV-IL-22



## Understanding the Quality of Cattle Milk: A Proteomics View

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### Abstract

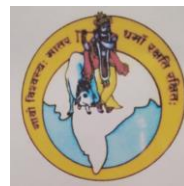
Cow's milk is a rich source of micronutrients and proteins, mainly  $\beta$ -casein. Having more than 13 known distinct alleles,  $\beta$ -casein is a highly polymorphic milk protein. The A1 allele of  $\beta$ -casein has been implicated as a risk factor for numerous health implications in humans, whereas milk with the A2 allele is considered safe for human consumption. This is because the A1 variant is a source of  $\beta$ -casomorphins (BCMs) correlated with the etiology of various human diseases like Type 1 diabetes, ischemic heart disease, depression, Sudden Infant Death Syndrome (SIDS), etc. It is reported that the milk of indigenous desi cattle contains the A2 allele of  $\beta$ -casein thus, is considered better than the exotic cattle in terms of health hazards, which is primarily responsible for producing the harmful A1 allele. However, scientific backup to prove these claims is meager. In-depth studies on these less-characterized proteins could shed more light on milk quality in terms of its health benefits.

**Keywords:** Cattle milk, Cow science, Traditional knowledge





NCGV-IL-23



## Antimicrobial Properties of Natural Spices and Their Effect on Controlling Diseases of Dairy Animals

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### Abstract

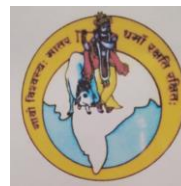
Spices are natural plant products that improves the flavour, aroma, taste and colour of food products, beverages, liquors, pharmaceutical, cosmetic and perfumery. Apart from this, spices also provide antimicrobial properties. It contains flavonoids coumarins, carotenoids, curcumin, saponin, lignins, polyphenols, terpenoids, sulphide and plant sterols. This articles reviews the antimicrobial properties of spices and their effect on curing diseases of dairy animals derived from research papers. The bioactive compounds present in various spices are piperine an alkaloid in Black pepper, 1, 8 cineole in volatile oil of cardamom, capsaicin in chillies, capsicum and paprika, organosulphur compound like allicin and allyl methyl sulphide in garlic, menthol in mint, cuminaldehyde in cumin, flavonoids such as quercetin, kaempferol, in coriander. Nigellone, thymoquinone, thymohydroquinone and saponin in black cumin. The bio active compound present in aqueous extracts of garlic shows bactericidal effect against *Streptococcus agalactie*, *Escherichia coli* and *staphylococcus aureus* causing mastitis in dairy cow. The antimicrobial properties in black cumin act against coagulase- negative *staphylococci* (mastitis) in Bovine. Pepper act as an excellent bioenhancer of many veterinary drugs. Cardamom extracts 1, 8, cineole are the powerful stimulators of the immune system and animal digestive systems. Capsaicin and cinnamaldehyde enhances immunity and reduces negative effects of enteric pathogens in livestock. Thymol is used to treat ailments in respiratory tract of bovine. Herbal tea from thyme is used for treating diarrhoea in calves. Capsaicin modulate immune function in cattle. Turmeric paste is used to cure skin infections in cow. Feeding cinnamaldehyde extraction from cinnamon alone or in combination with eugenol increase milk production in dairy cattle since spices have a great potential to be developed as a safe microbial agent. Future studies and more research should be initiated to explore antibiotics out of natural spice products to control diseases of dairy animals.

**Keywords:** Antimicrobial properties, Anti-bacterial properties antifungal properties, dairy diseases





NCGV-IL-24



## Management of Blind Cattle in Gaushala and Mitigation of Ocular Pain

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### Abstract

Unlike companion animals, cattle are not presented to veterinary hospitals for ocular affection. As a mission to mitigate ocular pain we might have to search for these subjects in Gaushala / animal shelters. In many instances medical management is sufficient, however, in selected cases; surgical intervention is required for resolution and amelioration of clinical signs of ocular pain. Affections of eye are commonly encountered in all the species of animals. If these are not treated in time, the vision may be hampered, which may impair the physiology, draught ability, utility and productivity of animals leading to economic loss to the animal owners. Exactly how much a dairy cow's vision contributes to the quality of her life cannot be fully comprehended by her caretakers, but good vision and comfortable, pain-free eyes are surely a right of every animal and something that we as their caretakers should try to provide whenever possible.

Over a period of time various ocular disorders viz. congenital cataract, dermoids, congenital glaucoma, persistent pupillary membrane, corneal edema, anophthalmia and strabismus have been reported in cattle. Diagnosis and clinical assessment of visual changes in the animal are important prerequisites for treatment. This requires sound knowledge and specialized training in veterinary ophthalmology. This however, does not mean that ophthalmology always depends upon complicated tests and involves use of expensive equipment. Most of time simple ocular examination and basic diagnostic tests help to categorize as well as limit the number of diagnostic possibilities. Though ocular diseases do not directly threaten the life of domestic cattle, except in the case of malignant carcinomas, it significantly reduces their working efficiency, productive performance, feeding ability and safe-keeping from danger, reasons for which a farmer would abandon his cattle for lack of resources to feed an unproductive animal. It's need of the hour to educate livestock owners regarding common ophthalmic affections and eye care procedures for their cattle by organizing community outreach camps involving local Gaushalas and dairy owners. It's high time to innovate far-reaching eye care technologies such as telemedicine-based consultations. Primarily, Veterinarians can be trained for basic diagnostic procedures and medicinal treatment of common ocular affections at remote areas.

**Keywords:** Blind Cattle, Gaushala, Mitigation, Ocular Pain.





NCGV-IL-25



## Indigenous Badri Bull Urine: A Bacteriological Analysis

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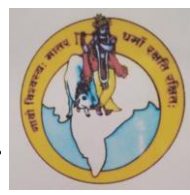
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### Abstract

The cow urine distillate was found to increase immunity and phagocytic activity of macrophages. It has now been used in several Ayurvedic preparations by Gaushalas as a source of their income. However, the urine of males (Nandi/ Bulls) are still not in use and these are maintained in gaushalas without any income while there is huge expenditure is done on their maintenance. Therefore, it has been thought to carryout research on male urine also. Keeping in view problems of gaushalas facing management of male animals and expenditure on feed and fodder with no financial gains also, it was planned to study the urine of males (Nandi/ Bulls) for its effect on immunity. Though the urine of a healthy bull is almost sterile and as such it does not contain any harmful bacteria. However, it may contain several kinds of microorganisms as contaminants during collection, storage, transportation, processing and packaging. Therefore, it has been planned to study the bacteriological quality of indigenous Badri bull urine and its distillate. A total of 6 (3 fresh and 3 distillates) urine samples were subjected to cultural examination following the standard procedures of Bacteriology. Cultural examination did not reveal the presence of *E coli*, *Salmonella* spp, *Pseudomonas* spp and *Staphylococcus* spp. However, the total aerobic count varied from 484 to 710 cfu with an average of 607 cfu per ml as against of standard permissible limit of 1000 cfu per ml. These findings suggest that Badri bull urine is safe to use in Panchgavya/cowpathy collected from healthy indigenous Badri bulls.

**Keywords:** Cowpathy, Bull urine distillate, Bacteria, culture.





# Oral Presentations





## Oral Presentations

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NCGV-O-1



## “Cow” - An Instigator in Culture & Heritage of Ancient Tamil Land

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### Abstract

Cows have played an important role in culture and heritage for thousands of years. Cows are being seen as a symbol of wealth, strength, and abundance. In ancient Tamil, cows played a significant role in the political and economic systems of the country. They were a measure of wealth and power, a source of revenue and diplomacy, an integral part of the social structure, and protected by law. In addition, Cows were often used as a means of diplomacy between different ethnic groups/kingdoms. The cows as part of traditions are well-exemplified since Sangam age in Tamil land which is located in the southern part of India. Sangam era Tamil land consists of present-day areas of TamilNadu, Kerala, Andhra & Karnataka states. Literary works are the primary source for information about ancient heritage and culture. In this regard, Sangam literature is an excellent example for Tamil people lifestyle. In that, cow also played a vital role. In literary Tamil, cow is referred as “Aa” - the first long vowel of the language. Also referred as “Ko, Petram, Pasu, etc.”. As per Classical Tamil language, nouns can be classified into two categories based on class, namely “Uyarthinai” (Human Generic Class – includes Humans) and “Ahrinai” (Non-Human Generic class includes animals, birds, trees, non-living things, etc.). Even though “Cow” belongs to “Ahrinai” (the Non-Human Generic class), it is often honored more than “Uyarthinai”. One of the Sangam literary works, Purananooru (9<sup>th</sup> verse) explicitly alluded to this by mentioning the cow first, followed by women, patients and so on while describing the war ethics. In ancient Tamil land, cows have been used as an important mediator for the beginning of the war. Ethnic group who wants to wage war on another ethnic group enters its borders and captures the “Aniraigal” (herd of cows). Ethnic group who lost his “Aniraigal” will take his cattle back. These two major events have been mentioned by many literary works as “Aanirai Kavardhal” (Stealing herd of cows) and “Aaniral Meetal” (Recovering of cows back). Prominent Tamil grammar works Tolkappiyam & Purapporul venba maalai have allotted exclusive “Thinai” (Genre) for the aforementioned events as “Vetchi”, “Karanthai” respectively. It is evident that cows have played a major role not only as individual wealth but also as country’s wealth, Culture and traditions, wars, etc. The paper explores the significance of cows in terms of etymology, wealth, and political structures in ancient Tamil culture.

**Keywords:** Aa, Cow, Sangam Literature, Vetchi Thinai, Karanthai Thinai.





NCGV-O-2



## A Thematic Content Analysis of Usages of ‘Gau’ In Indian Scriptures

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### Abstract

This paper presents the etymological, epistemological and ontological usages of the word ‘Gau’ and thereafter it provides a thematic content analysis of the word ‘Gau’ in the traditional Indian literature. This paper argues that such an analysis is needed for the traditional ‘Gau vinyan’ to be incorporated into the modern scientific methods. A survey of the reports of ‘Gau’ mentioned in the scriptures will establish the need for modern scientific investigations. The Sanskrit root of ‘Gau’ is in 'ग ल गतौ' which means movement. One of the meanings of

‘Gau’ is ‘cow’ which has been conceived of as the means of keeping the creation moving by facilitation of action (yagya karma) (Padma Puran, 48 / 145-146). Even all the creation is forever moving as per isavasyopanishad (“यि कच जग िा-जगत”). At one place ‘gau’ is seen as the entire creation represented in one place (Atharvaveda, Kand 9, Sukta 7) while at another place it has been described as a means to material prosperity and eternal salvation (Rigveda,

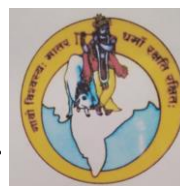
6th Mandala, 28th Sukta). Different mentions of the word ‘gau’ with its meanings has been analysed and presented in this paper for an overarching understanding of the ‘Gau Vinyan’ in traditional Indian knowledge systems.

**Keywords:** Gau vinyan, Yagya karma, Traditional knowledge.





NCGV-O-3



## Babool Based Green Silver Nanoparticles as effective treatment of Severe Cattle diarrhea

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### Abstract

Cattles have been integral part of Indian culture, with deep religious and economic significance. Livestock provide around 20.5 million Indians their livelihood. Diarrhea in cattle, especially younger calves, leads to significant mortality, growth retardation, economic burden and unspeakable emotional damage. Dearth of clear cut and emergency treatment regimens have lead to late diagnosis, under-treatment and continuing rise is cases of mortality due to infective diarrhea.

Metallic Nanoparticles are particles between 1-100 nm scale, are made of a metal which is reduced and stabilized using reducing/stabilizing agent. It is commonly synthesized using synthetic reagents, which are expensive, and releases toxic wastes in nature. An emerging way of Green synthesis, utilizes natural substances as reducing/stabilizing agents.

Babool tree (*Acacia spp.*) is a commonly found pan-India, with many uses in traditional medicine. Decoction of its root, bark and leaves has been used for many centuries as treatment of diarrhea, parasitic infections in both human and animals. It also has high amount of tannic acid, a reducing agent. Hence for this study, I formulated Silver Nanoparticles using Babool extract through a simple and cheap one pot synthesis. Silver Nitrate was directly added and stirred in heated Babool broth to form Babool based Green Silver Nanoparticles. Characterization showed size distribution between 50-800 nm, average size 90nm. These Silver Nanoparticles were tested *in vitro*, against strains of *Vibrio*, *Salmonella* and *Escherichia*. Its efficacy was found to comparable to antibiotics like Tetracycline and Ofloxacin. 18 diseased cattle's (*Bos taurus*, Holstein Friesian) suffering from severe diarrhea, and not responding to conservative treatment were taken as patient group for *in vivo* study (10 in test and 8 in control group). Ethical approval for same was provided by SRISTI (Society for Research and Initiatives for Sustainable technologies and Institutions) Institutional Animal Ethics Committee, Gujarat. Dose of Nanoparticles was calculated through volumetric method, and infected cattle were given Nanoparticle enema.

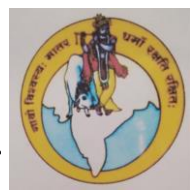
Based on parameters of clinical relief, appetite restoration, decreased stool frequency and colony number pre and post treatment, it was found that nanoparticle enema showed significant improvement in Cattle health outcome, more than oral/iv antibiotics.

**Keywords:** Bovine diarrhea, Silver nanoparticles, Green chemistry, Infectious disease.





NCGV-O-4



## Jiva Upakara Tantra-Based Bio- Social Healing for Cancer Patients by Implementing an indigenous cow farming and Whey Protein Production Plan

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### Abstract

Jiva Upakara Tantra is an Indigenous Knowledge System (IKS) based mind-body- based social medicine approach used in the rural communities of ancient Kamrupa. The key concept of this approach is based on the Avatar theory of Vaishnavism in which a higher being descends to the society and provides altruistic support to a community undergoing immense stress. The Vedic altruism based public health approach is based on the idea of an ‘Avatar Kosha,’ which is a transient, latent kosha (meaning “sheath” in Sanskrit) that appears only in times of high stress. As per the metaphysics of the philosophy, during stressful times such as epidemics or pandemics, the Avatar Kosha takes on a powerful and governing role over the Pancha Kosha system (the five layers of mind-body that surround the ‘Atman’ (Self) as mentioned in Taittiriya Upanishad of Vedic philosophy to return the mind-body to homeostasis. Based on this Vedic philosophy, the tantric practitioners of rural Kamrupa organized a network called Indigenous Kamrupean Information Network (IKIN) of local temple-based healing systems to combat diseases such as smallpox, cancer, and tuberculosis. The central aim of this medicinal practice was to enhance altruistic practices in the community, mainly in the greater Sualkuchi-Hajo complex.

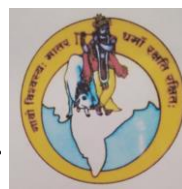
Based on the JUT philosophy, KaviKrishna Telemedicine Care working on a whey protein project in Sualkuchi-Hajo complex of Kamrupa with the Indigenous Community and Cancer patient’s families. Whey protein is an important component of a patient’s health, but many cancer patients are suffering from whey protein deficiencies in this area. From our year-long work treating these patients in the rural area, we found that many cannot afford the protein, as it is expensive, or are not aware of it. At the same time, these rural areas have an abundance of cows and milk products as their part of their indigenous culture. In fact, cows are an integral part of Sualkuchi’s Indigenous Knowledge System (IKS), as they have served cultural, economic, and health-related roles for local villagers for centuries. As such, we are looking to develop a project to extract the whey protein from the local cow farms of Kamrup for distribution in a manner that makes whey protein locally available at a minimum cost. In this way, KTC looks to benefit from the already-established local temple network (Figure 1). This temple- based whey protein production strategy will target the current problem of whey protein distribution by increasing its awareness among local villagers as well as its accessibility. Over to course of time, the local rural people can learn to make the whey protein by themselves, becoming self-reliant and sustainable.

**Keywords:** Bio- Social, Cancer, Cow farming.





NCGV-O-5



## Nanocarriers from Ayurvedic Bhasmas to Deliver Anti-Malarial drugs

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### Abstract

Malaria is one of the deadliest diseases caused by parasitic Plasmodium species and has claimed millions of lives worldwide. The evolution of drug resistivity in parasites against conventional anti-malarial drugs makes the development of novel drugs or enhancing the efficacy of existing drugs critical. Ayurveda, an ancient Indian medical system, uses bhasmas, which are metallic/mineral preparations obtained by purification and repeated cycles of calcination and incineration, for treating several ailments, including diabetes. Recent studies have shown that bhasmas possess nanoparticle-like characteristics and can potentially be used for drug delivery and disease diagnosis. This study aimed to evaluate the anti-malarial potential of selected bhasmas and explore their potency for delivering drugs inside red blood cells. The significance of this study lies in the potential use of bhasmas as nanocarrier in Malaria, a disease with limited treatment options due to drug resistivity. To achieve this objective, modern techniques such as Field Emission Scanning Electron Microscopy (FESEM), Field Emission Transmission Electron Microscopy (FETEM), and X-ray Diffraction (XRD) were used to analyse the nanoparticle-like characteristics of the bhasmas. These techniques allowed for the precise characterization of bhasmas and provided insights into their potential applications in drug delivery. To assess the anti-malarial potential of selected bhasmas, in vitro assays were employed. The assays evaluated the growth inhibition of Plasmodium falciparum (Pf3D7). The results showed that the Yashad bhasma exhibited significant anti-malarial activity, thus highlighting their potential as an alternative therapy for malaria. To study the potency of Yashad bhasma for delivering drugs inside red blood cells, fluorescence microscopy, confocal laser scanning microscopy (CLSM), and flow cytometry (FACS) were used.

In conclusion, this study highlights the potential use of bhasmas as drug carrier for delivering Anti-Malarial drugs. The use of modern techniques for the characterization of bhasmas and their anti-malarial potential provides a comprehensive understanding of their properties and applications. The findings of this study open new avenues for the development of novel anti-malarial drugs and nanomedicine, thus contributing to the advancement of the field of medicine.

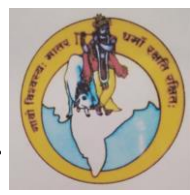
**Keywords:** Ayurvedic Bhasmas, Malaria, Anti-Malarial drugs, Drug Delivery, Nanomedicine, Nanocarriers.







NCGV-O-6



## Therapeutic Use of Gomutra Arka in Disease Management

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### Abstract

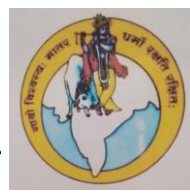
Cow (*Bos indicus*) urine/gomutra has been elaborately explained in Ayurveda and it is described in “Charaka Samhita”, “Sushruta Samhita”, “Ashtanga Sangraha” and other Ayurvedic texts as an effective medical substance/secretion of animal origin with innumerable therapeutic properties. Gomutra is not a toxic waste material. 95% of it is water, 2.5% of Urea and the remaining 2.5% is a mixture of mineral salts, hormones and enzymes. Gomutra exhibits the property of rasayana tatwa which is responsible for modulating various bodily functions including immunity. It augments B and T-Lymphocyte blastogenesis, IgG, IgA and IgM antibody titers in mice. The distillate of cow’s urine is known as Gomutra Arka. Its shelf life is longer than Gomutra. While preparing the distillate some impurities are filtered. Gomutra Arka’s properties are: Rasa (taste)- Katu(pungent), Tikta(bitter) and Kashaya(astringent), Guna(properties)- Tikshna, Virya(potency)- Ushna(hot), Vipaka (resultant) – Katu(pungent). Its beneficial in weight loss, skin diseases (twak vikar), piles (arshas), cough (kaasa), abdominal disorders (for e.g Ascites), worm infestation (krimi roga), edema (shotha) etc. It is more palatable than plain Gomutra and the typical odour is significantly reduced. Gomutra Arka has properties to reduce edema, antipruritic, antihelmintic, antispasmodic, mucolytic, hematogenic (stimulates the blood flow). This review highlights the therapeutic properties of Go arka according to ayurveda and modern.

**Keywords:** Gomutra Arka, skin diseases, abdominal disorders, weight loss, kaphahara, antipruritic, antihelmintic, antispasmodic, mucolytic, rasayana.





NCGV-O-7



## Importance of Godugdha in the Management of Diseases as per Ayurveda with Special Reference to Jaloudara (ASCITES)

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### Abstract

Milk has been given the utmost importance throughout the world and is considered to be the complete food due to its high nutritive value and bioavailability. Godugdha due to its composition can facilitate the appropriate intake of some important macro and micronutrients throughout life. It is much appreciated for the therapeutic as well as nutritive in various forms of dietary contain due to its abundant quality such as rasayana, jivaniya, hridya, tarpaka, virechak, buddhi prabodhaka as mentioned in Ayurvedic classics. The properties of godugdha are similar to the qualities of ojha (Immunity promoter) and hence are used in the prevention and management of various diseases. Hepatic cirrhosis is one of the leading causes of death worldwide, especially if complicated by ascites known as Jaloudara in ayurveda. In modern science, till there is no such treatment which can cure ascites completely. In such case, ayurvedic milk therapy alone or with other drug formulations can show immense result in the management which is proven otherwise by change in the LFT values after the treatment. Thus, cowpathy should be practised worldwide to promote a better life. This review highlighted the nutritious and therapeutic properties according to ayurveda and modern.

**Keywords:** Godugdha, Ojha, Jaloudara, Milk therapy, Ayurveda





NCGV-O-8



## Goghrita from Living Life to Saving Life

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### Abstract

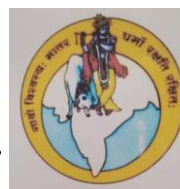
Ghrita/Ghee has always been an integral part of traditional Indian diet, which has both the nutritious and therapeutic values. It works as Deepana-Improves appetite, Balya-Nourishes body, Medhya- Augments the intelligence and memory. Ghee also builds the aura, makes all the organ soft, and increases Rasa and Ojas, which is the underlying basis of all immunity and the essence of all the bodily tissue. With abundance of antioxidants acts as Rasayana, a wonderful anti aging therapy. By virtue of it's Yogavahi nature Ghrita has the power of assimilate the properties of other drugs when added to it without loosing it's own properties. In Ayurveda different meditated Ghritas are used internally as well as externally. Hence Goghrita with several effects adds an important position in Ayurveda Chikitsa. This review Highlights the nutritional and therapeutic properties according to Ayurveda and Modern aspects. Moreover, in relation to the study a classical Ayurvedic preparation of Ghee named Panchatikta Ghrita will be pointing up in this presentation.

**Keywords:** Ghrita, Deepana, Medhya, Ojas, Rasayana, Yogavahi, Ayurveda, Panchatikta Ghrita.





NCGV-O-9



## Efficient Formulation of Panchgavya from a Cow and Their Effect on Diabetics in Murine Model as a Regenerative Therapy

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### Abstract

Diabetes mellitus is a metabolic disorder that is characterized by high blood glucose levels caused by insulin deficiency or insulin resistance. It is associated with both chronic complications that impact the quality of life, as well as acute complications that may lead to life-threatening conditions. Diabetes can lead to various complications, such as cardiovascular disease, kidney damage, nerve damage, and blindness, which can increase the risk of premature death. In India, it is estimated that 77 million adults over the age of 18 have type 2 diabetes and that almost 25 million are prediabetics (with an increased risk of developing the disease in the near future). Nearly 500 million people (9.3% of adults aged 20 to 79) globally have diabetes as of 2019. In the previous ten years, the estimated number of adults (20-79 years old) with diabetes has climbed by 62%, from 285 million in 2009 to 463 million now. Panchgavya, a traditional Ayurvedic remedy made from cow milk, ghee, curd, urine, and dung, in equal quantity has been used in India for thousands of years for various health benefits. In recent times, there has been growing interest in studying the therapeutic potential of panchgavya in modern medicine. Recent studies have shown that panchgavya significantly improves the diabetes in the murine model. This study offers a promising insight into the therapeutic potential of traditional Ayurvedic remedies in modern medicine. In addition to its effects on diabetes, panchgavya has also been shown to have a positive effect on cardiovascular health, immune function, and digestive health. The development of panchgavya as a natural and sustainable alternative to modern medicine has gained increasing attention in recent years. Further, research is needed to determine the potential of panchgavya as a treatment for human diabetes. The diabetic murine model is an experimental procedure that involves breeding mice treated with a streptozotocin that provokes diabetes-like symptoms in all the mice, before testing them for the efficacy of potential treatments. The model allows for a better understanding of the disease, as well as the development of more effective treatments with panchgavya. Alternative or complementary therapies may not be scientifically proven to be effective in managing diabetes. Diabetes is typically treated with medications like insulin and metformin, dietary changes, and regular exercise. However, some people with diabetes may require additional treatments to manage their blood sugar levels effectively. Panchgavya treatment improved glucose tolerance, reduced insulin resistance, and increased insulin secretion in diabetics murine model is under investigation. It can be concluded that panchgavya may be improved or regulate diabetes in a murine model in mice and use in human beings in the near future.

**Keywords:** Diabetes, Ayurvedic, Panchgavya, murine model, and streptozotocin.



## Use of Organic Fertilizers - A Way to Increase Crop Yield as Well as Soil Health of Khasi Mandarin (*Citrus reticulata*, Blanco) in Assam

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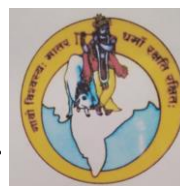
### Abstract

Khasi Mandarin is the most important citrus fruit cultivated in N.E India. The Khasi mandarin (*Citrus reticulata*), commonly known as Orange, produced in this region is famous in India for its superior quality in respect of its flavour, Juice content, soluble sugar and acidity ratio. An experiment was carried out in twelve years old Khasi mandarin plot in the farm of Citrus Research Station, Tinsukia of Assam to find out the effect of organic fertilizers on yield, quality and nutrient content of Khasi mandarin. The experiment was laid out with 5 m × 5 m spacing along with 5 treatments, 4 replication and designed with RBD. The result revealed that application of 75% Vermicompost (on N equivalent basis of RDF) + *Trichoderma harzianum* (30-40 ml plant<sup>-1</sup>) + Azadirachtin (1% at 3-4 ml litre<sup>-1</sup> as spray) + *Pseudomonas fluorescens* (30-40 ml plant<sup>-1</sup>) were found effective in improving the yield, soil nutrient status and quality of Khasi mandarin with B: C ratio 2.94. Among the five different treatments tested, the treatment (T<sub>4</sub>) having 75% Vermicompost (on N equivalent basis of RDF) + *Trichoderma harzianum* (30-40 ml plant<sup>-1</sup>) + Azadirachtin (1% at 3-4 ml litre<sup>-1</sup> as spray) + *Pseudomonas fluorescens* (30-40 ml plant<sup>-1</sup>) was found to be effective for improved vegetative growth as compared to other treatments. Results revealed that maximum plant height (4.51m) and canopy volume (33.16 m<sup>3</sup>) were observed in treatment T<sub>4</sub>. Regarding, fruit qualities, higher juice content (48.7%), TSS (11.2<sup>0</sup>Brix) and maximum number of fruits per tree (483) were observed in above mentioned treatment (T<sub>4</sub>). Maximum soil nutrient status and higher organic carbon content (1.25 %) were recorded under the same treatment. Significantly higher soil fertility status and superior N, P, K content on leaf were observed under this treatment.

**Key words:** Khasi mandarin, Organic fertilizers, Vermicompost.



NCGV-O-11



## Integrated Soil and Crop Management in Organic Agriculture by Gasification of Biochar-driven applications for determining Soil Quality and Human Health

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### Abstract

The environmental and biodiversity benefits of organic husbandry are extensively honoured, but there's still contestation about the goods of different conditions and the goods of organic product styles on the nutritive composition of food and mortal health. Then, it's critically reviewed the substantiation that organic husbandry styles ameliorate the nutritive quality of food crops and beast. Also, it's also mentioned that current understanding of how quality earnings are linked to the perpetration of the inventions that are introduced into conventional crop products during the intensification or green revolution of husbandry over the decades. The range of health benefits related to organic food consumption is also bandied. The bandied results are from i) salutary intervention studies which have set up that organic food consumption mainly reduces fungicide exposure in humans and affects feed input of lives, besides growth hormone balances and vulnerable system responsiveness in beast models; ii) mortal epidemiological- cohort studies have reported significant positive associations between organic food consumption and mainly lower prevalence of a range of conditions including rotundity, metabolic pattern, cancer, hypospadias, pre-eclampsia, eczema and middle observance infections in babies; iii) relations and trade- offs between diet(e.g, whole-grain, fruits and vegetables and reduced red- meat consumption and food types( organic versus conventional) concerning public and unborn food security. With the current world's climatic conditions, reactionary energy reduction and colourful types of pollution, including discharge of heavy essence oxides in the terrain, biochar has surfaced as a feasible option to attack heavy essence pollution. Biochar is a carbonaceous product attained by pyrolysis of biomass- deduced oxygenated composites. The chemico-physical characteristics of Biochar depends on the type of feedstocks used and the pyrolysis conditions (e.g. temperature range, pressure) involved in its product. It's remarkable electrocatalytic performance and high porosity, large surface area, surface functional groups and high adsorption capacity make it an excellent substrate for removing heavy essence and ions from polluted soil and water maintaining their quality. It also tackles the arising issues of climate changes, by carbon insulation, dock depleting fossil energies via bio-oil and syngas produced by thermal decomposition/ Charring of biomass and it turns out to be a waste disposal alternative, cost-effective and eco-friendly adsorbent system.

**Keywords:** Biochar, Pyrolysis, Gasification, Organic Farming, Microbial Fermentation, Human Health, Sustainability, Cadmium, Mycotoxins, In- Vitro Test, Cow Derived Biochar.



## Comparison Study of Soil Fertilizing Ability of Raw Cow-Dung and Bio-Char

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### Abstract

Agricultural land nowadays is plagued by a lack of organic matter in the soil, making fertilization ineffective and inefficient. The causes are rapid weathering of mineral and organic materials, soil erosion, and severe nutrient leaching. Organic waste is one of the materials for soil improvement to restore soil fertility, quality, and health. The current study focuses on understanding the nutritional quality of indigenous cattle's cow-dung and cow-dung-based biochar, which can serve as a soil fertilizer. The nutritional analysis was done using TOC (total organic carbon) analyzer, flame photometer, ion exchange chromatography (IC), dissolved oxygen (DO), and pH probe to evaluate the parameters such as organic carbon, inorganic carbon, total carbon, total nitrogen, total potassium, anions such as bromide, chloride, nitrate, phosphate and, sulfate, dissolved oxygen, pH. The outcome of the analysis shows that total carbon and total nitrogen are higher in the raw cow dung sample of cattle compared to biochar sample, with values of 35.97 ppm and 11.04 ppm, respectively. Moreover, the sulfate and phosphate ion is present at 11.032 ppm and 0.198 ppm in the raw sample. However, the potassium (K) content is less to be 1.36 ppm as compared to biochar. Conclusion: These results ensure that the raw cow dung of indigenous cattle has promising fertilizer ability with better carbon, nitrogen, and anions sources.

**Keywords:** Organic waste; cow dung; biochar; fertilizer; indigenous cattle.

## Replacing Jaggery-based Jeevamrutha Bio-fertilizer with Other Carbon Substrates for Various Nutritional Factors in Assam

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### Abstract

This work targeted and affirmed the possible scope to utilize nutrition-rich carbon sources that are readily available in rural communities of Assam for Jeevamrutha bio-fertilizer formulations. Among the two carbon sources, sugarcane juice conveyed a higher %TKN, %P and %OC concentration (1.35%, 0.67% and 1.6% respectively) along with a higher microbial density (bacteria,  $93 \times 10^6$ ; N-fixers,  $37 \times 10^4$  and P-solubilizers,  $41 \times 10^5$ ) in comparison with jaggery-based Jeevamrutha bio-fertilizer formulation (%TKN, 0.67%; %P, 0.14%; %OC, 0.62%; bacteria,  $85 \times 10^6$ ; N-fixers,  $18 \times 10^4$  and P-solubilizers,  $36 \times 10^5$ ). However, from the cost perspectives, starch rice water-based bio-fertilizer system effectively enhanced the nutritive values of the developed bio-formulation. The %TKN, %P and %OC content (0.82%, 0.35% and 1.5%) along with higher microbial load (bacteria,  $87 \times 10^6$ ; N-fixers,  $24 \times 10^4$  and P-solubilizers,  $38 \times 10^5$ ) have been reasonably good in comparison with jaggery-based Jeevamrutha bio-fertilizer formulation. Therefore, to address the detrimental winter nutrient depletion in soil and microbial growth profile, replacing jaggery with starch rice water in the Jeevamrutha bio-fertilizer could be beneficial in terms of its cost-effectiveness and field applications.

**Keywords:** Jeevamrutha, Bio-fertilizer, Agriculture.



## Variation of Serum Calcium and Inorganic Phosphorus During Oestrous Cycle Following Application of Exogenous Hormonal

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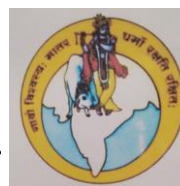
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### Abstract

The valuable contribution from cattle towards human life needs no elaboration. The antique culture of cattle rearing is highly honored in North Eastern States like other states of India do. Knowledge and innovative skills achieved out of application of exogenous hormone compounds in animals have been proved encouraging. Induction and synchronization of oestrous, super ovulation, induction of puberty in prepubertal heifers and post-partum cow etc. which are being achieved through hormonal application have gained much popularity in the livestock industry worldwide. Illirin an analogue of PGF<sub>2</sub> $\alpha$  and Crestar ear implant- a combination of norgestomet and estradiol Valerate have been proved potential to synchronized oestrous in cattle. In this study the cyclic variation of serum calcium and inorganic phosphorus were studied along with oestradiol 17 $\beta$  and progesterone concentration. A total 15 numbers of healthy cycling indigenous cows of first and second lactation were included in this experiment. They were reared under semi-intensive system. The care, management and nutrition was undertaken as per the scientific procedures. On the basis of treatment rendered the animals were randomly divided into 3 groups comprising of 5 animals in each gp. Group- I: saline treated cows (Control), Group-II: Illiren and Group-III: Crestar ear implant. The Gp-II animals were administered with a single injection of 5ml Illiren intramuscularly each on day 11 of the oestrous cycle. The Group-III cows were subjected to creastar ear implant, immediately followed by intramuscular injection of Estradiol valerate at the dose of 5mg/ cow. The implant was removed on day 9 after its implantation. The blood sample were collected every alternate day beginning from day 0 of synchronized oestrous until onset of next oestrous. Oestradiol 17 $\beta$  and progesterone, serum calcium and inorganic phosphorus in serum was estimated by the standard methods. The recorded data were analysed by the method of Snedecor and Cochran. The hormonally treated cows showed a decreasing trend in serum oestradiol-17 $\beta$  concentrations from the peak levels (145.66+7.89 and 99.00+1.99 pg/ml) day of synchronized oestrus towards the mid oestrous cycle which again showed a rising trend as the days advanced towards the subsequent oestrus. Therefore, the rise and fall of the oestradiol-17 $\beta$  profile in the present study suggested that there was progressive luteinization of the oestrogen secreting follicular cells of the ovary after oestrus following which there was recurrence of its secretion with the growth and development of ovarian follicular cells before subsequent oestrus. This progression of luteinization was well depicted in the present findings of serum progesterone profile in both the hormonally treated and control cows. The serum progesterone concentrations showed an increasing trend following the day of synchronized oestrus and sustained high levels (4.00+0.11 and 5.83+0.02 ng/ml) during the mid-luteal phase till day 14 to 16 of oestrus, and thereafter, its concentrations rapidly fell to the base level till the onset of oestrus. The serum calcium showed a declining trend from the early oestrus till the mid oestrous cycle, then again showed an increasing trend to the next oestrus. This concentration pattern was identical to the oestrogen profile in hormonally treated and control cows in this experiment. On the contrary, the serum inorganic phosphorus levels showed an increasing trend from the day of oestrus towards the mid cycle which then declined with the advancement of days towards the next oestrus. As observed, this finding was in parity to the trend exhibited by the progesterone profile and it might indicate that, progesterone had the effect on positive nitrogen balance. This study suggested that, a single intramuscular injection of Illiren – an analogue of PGF<sub>2</sub> $\alpha$  (25 mg/animal) was proved potential exogenous hormone to be used for synchronization of oestrus in indigenous cows of Assam.



NCGV-O-15



**Keywords:** Cow, Cattle, Oestrous Cycle, Oestrous.

## **Strengthening social and financial security through cattle rearing around Laokhowa-Burhachapori Wildlife Sanctuary, Assam**

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### **Abstract**

Livestock rearing is one of the major sources of livelihood in rural India alongside agriculture. Domestication of cattle is common due to direct monetary output through milk selling business or production of dairy items. At a household level, people often domesticate cattle to meet nutritional benefits, engagement in ploughing, cow dung as crop manure, binding mud house and as biofuel in cooking. However, grazing of cattle in secured and healthy grassland is an issue of contestation especially for areas near protected area for wildlife, where grazing is prohibited under the Wildlife Protection Act of India (1972). Laokhowa and Burhachapori Wildlife Sanctuaries falling under the administrative control of Nagaon Wildlife Division and under Nagaon and Sonitpur Districts respectively is surrounded by villages comprising diverse ethnic groups. Using Key Informant Interview method, 10 villages were selected within 1 km radius of the protected area based on certain pre-determined criteria such as communities living, proximity to the forest and anthropogenic pressures in the form of human and livestock population. The study is found to have a presence of

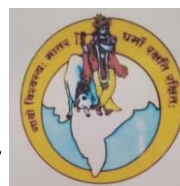
23,500 cows in the selected villages. This paper is a sincere attempt to explore the driving factors from cultural lenses that influence rearing cattle despite vulnerabilities like annual flood, limitation of secured grazing spaces and lack of inoculation. Social and financial sustainability, here, can be navigated through provisions of fodder or stall feeding at reasonable cost, accessible amenities for milk storage and processing and state sponsored annual immunization drives against common diseases like foot and mouth and prevention of disease transfer from/to wild animals.

**Keywords:** Cattle, grazing, milk, vulnerability, livelihood, Laokhowa, Burhachapori





NCGV-O-016



## Impact of bovine mastitis on rural economy and nutritional security in Terai-Dooars region of West Bengal, India

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### Abstract

Bovine mastitis causes a significant financial loss of \$35 billion (worldwide) and Rs.575 million (India) per annum translating to reduce milk production, cost of treatments and culling of animals by 78%, 8% and 14% respectively. Similar to other provinces, the Terai-Dooars region of West Bengal which shares 11% of the total state bovine population is also vulnerable to the bovine mastitis and pledges huge financial losses owing to reduce milk yield, expenses of veterinary aids etc. Considering this facts, the present study was conducted to assess the impact of bovine mastitis on rural economy consequently the nutritional security in Terai-Dooars region. A comprehensive questionnaire schedule was used for survey-based data collection by interview at the farmer's doorstep and veterinary dispensaries for a period of twelve months (January–December, 2022). A total 183 mastitis cases were reviewed based on clinical symptoms in sixteen development blocks under three adjacent districts namely Cooch Behar, Alipurduar, and Jalpaiguri under Terai-Dooars region. The economic impact of the mastitis was assessed by calculating production loss (yield and discarded milk) during disease, post treatment milk yield loss for 30 days, cost of treatment and culling of animals. Data generated during the course of study were analysed using suitable statistical soft-ware package. The average loss of milk yield and discarded milk yield were recorded 3.01 Litre and 4.67 Litre per day respectively. The field level survey confirmed the post-treatment milk yield loss by 34.5% per animal from the average production potential which has been deliberated a financial loss of Rs.2544. Consequently, the support for veterinary aids (treatment) prevailed for 7days was expensed all-about Rs.3466.67 per affected animal. Additionally, teats sealing unilateral and bi-lateral or both were also observed in this study which claimed 9.56% forced culling of the animals. The loss of milk yield revealed a loss of 5.33kg protein and other essential nutrients per animal which could be negatively correlated with nutritional security for this zone. Further, human health hazards are also being exemplified upon abrupt use of chemotherapeutics beyond physical and physiological status of the animals. It is concluded that bovine mastitis commits an expense of Rs. 7735.70 per animal which not only affects the rural economy and livelihood also focus urgent re-orientation of policies for insinuation of One-Health concept.

**Keywords:** Rural economy, Bovine mastitis, Cow milk



## Vedic Altruism based Management and Promotion of Muga cultural and Medicinal Plants in the Sualkuchi-Hajo cultural complex of Kamrup

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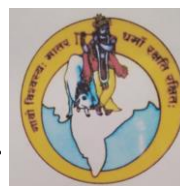
### Abstract

As per the theory of Vedic Altruism, Social interaction among the community and individual, the interaction process can lead to emergence of a new knowledge, the concept of community-based Avatar kosha. Study was done with one family in Tantipara, weaver's colony near Hatisatra, Sualkuchi. There is a good track record of this family for past hundred years, this family had interactions with weavers' community with a close link with Hatisatra, that is also known as the hub of many weavers coming together. With the help of an ethnographic study of 100 year old period from 1920 to 2022, the weavers community specially Kabindra Kutir family that lives in Tantipara of Sualkuchi were the sufferers of the British Textile policy, During the early part of the 20th century weavers and traditional healers were going through period of severe crisis due to the influx of British made cloth (the result of Textile based Industrial revolution) and British medicine in the Sualkuchi-Hajo cultural complex. The herbal medicinal plants were losing its market value in the wake of the British made medicine. For the poor weavers, the main concerns of Muga/silk weaving were the competition from British made textile. To adapt and survive through this difficult period of time, weavers and healers incorporated the various innovative systems and, we witnessed the emergence of various microfinancing organizations including the Krishna Samaj, an informal guild type organization of weavers in Tantipara/Hatisatra to generate and support new ideas on Muga silk design, Muga weavers and the cultural revival and for the protection and promotion of the herbal garden, plants were scattered across the Suad Muni ashram, the site of Vedic altruism based medicinal practice. The study of the family shows that small interaction from Vedic altruism-based Avatar kosha network, productive things appeared. Similarly practicing of many medicinal plants with all health benefits as a part of daily lifestyle of the Tanti community as inspired by JUT philosophy is also evolved from the millennium old Vedic altruism-based management culture in our study area. As Vedic altruism theory states that any kind of connection and interaction can lead to the Avatar kosha activism in the community, that brings new Sahas Ojha. Therefore, our study hypothesizes the above factors are key to lead to the Avatara Kosha in Tantipara for their sustaining culture.

**Keywords:** Vedic Altruism, Muga cultural and Medicinal Plants.



NCGV-O-018



## Incorporating Ethnographic Techniques for One Health Research in Rural India

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### Abstract

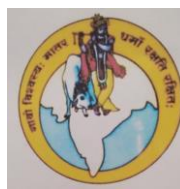
The ongoing COVID-19 pandemic and outbreaks of monkeypox, avian influenza, west Nile virus, and many other emerging infectious diseases reaffirm the imminent need for One Health as an integrated and unifying approach to balance and optimise the health of people, animals, and ecosystems. Nevertheless, cross-sectoral coordination is a key missing link in India's National Wildlife Action Plan (2017-31) and National Health Policy (2017). In recent times, conservation, ecological and veterinary professions have been actively collaborating for One Health initiatives. Still, a larger proportion of medical and social sciences professionals are yet to assume active roles or engagement in the theme. Out of 536 million livestock in India, 95% of them are in rural areas. Nearly half a billion small farmers collectively own around 300 million bovines. A dynamic interface of human-cow interaction exists in rural India. Based on our field experiences of using ethnography for research in animal health at the human-wildlife-livestock interface and literature search, we propose incorporating ethnographic tools such as participant observation, transect walks, tracking guides, interviews, and field notes for One Health research in rural India. Ethnographic research is a cyclic iterative process. Ethnographic techniques provide a framework of information on traditional practices, knowledge processes, communication, and behaviour shaping. The sustainability of behavioural initiatives aimed at One Health benefits by incorporating traditional practices and local knowledge. Research methods for ethnography are dynamic, fluid, and continuously evolving. Depending upon the intended research subject, methods and tools for ethnographic studies could be selected, sometimes singly but often combined with other methods. The ethnographic study for One Health is not intended to substitute laboratory-based empirical studies but as an adjunct to supplement the analytical observations made through conventional One Health tools and techniques. We argue for incorporating some of the traditional tools from the fields of ethnography studies in rural India to enrich One Health with transdisciplinary competencies as an adjunct to core areas of expertise for the discipline.

**Keywords:** One Health, Ethnography, Cow health, Interdisciplinary tools





NCGV-O-19



## An IndoAmerican Medical Humanities program promoting Kamrup's IKS-based healthcare: a model for innovative rural and global health practices

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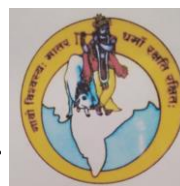
The Medical Humanities is an emerging educational field gaining traction in medical institutions of the U.S., U.K, and other countries abroad. Its purpose is to emphasize the interdisciplinary nature of medicine and view medical treatment through a biopsychosocial lens. Students engage in courses relating to unique healthcare methods and complete a field study research project. Such a kind of approach is imperative in tackling the multifaceted health-related issues of the current age. There exists a plethora of such arising issues, including but not limited to: widespread mental illness, excess population growth, educational deficiencies, and climate change. In a country like India where 65% of the population lives in rural areas, developing a biopsychosocial healthcare system modeled off each community's Indigenous Knowledge System (IKS) may prove to be the most effective strategy in combatting these pressing issues. Therefore, the KaviKrishna Foundation, a non-profit research organization directed by Dr. Bikul Das, is working to not only study, but revive the IKS of Kamrup, Assam. In this effort, KaviKrishna Telemedicine Care (KTC) has been running a rural medical clinic located Sualkuchi, Kamrup, based on the principles of Jiva Upakara Tantra (JUT), an ancient tantric medicinal philosophy of the area, for 30 years. Its affiliated laboratory in the U.S., the Thoreau Laboratory for Global Health, also directed by Dr. Bikul Das, aims to bring Medical Humanities students from the U.S. to engage with KaviKrishna's IKS-based rural healthcare system. In the current era of globalization, this Medical Humanities international exchange will serve to broaden the reach of India's IKS and apply its medical philosophies to the global health challenges of the day. Therefore, we intend to develop a Medical Humanities program based on our experience at KTC that is accessible to both the local Assamese as well as the international students.

**Keywords:** Healthcare, Muga, Biopsychosocial medicine





NCGV-O-20



## Importance of Cow-Dung in Traditional Food Storage Systems of North East India

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### Abstract

India is depending on agricultural farming and passing several indigenous techniques from generation to generation over 2000 years. Ancestors practised many pest-free farming and food storage techniques, in such attempts, cow dung played a significant role in agriculture and grain storage systems but current grain storage practices dealt with chemical-based pesticides which cause hazards to human health. This article reviewed the importance of cow dung in traditional food grain storage systems and traditional grain storage practices of Northeast India and experimental studies of cow dung and mud coatings of storage structures. It is noted that many food grain storage systems of Assam in Northeast India are absolutely indigenous. During the storage of food grains, farmers are faced with storage insect issues. To overcome these issues, indigenous practice among farmer families is to apply a thin surface coat on the storage structures with a mixture of mud and cow dung to control insect infestation and moisture content. Moreover, a zone of inhibition test was performed to study the antimicrobial and antibacterial activity of the collected sample of mud and cow-dung coat from the storage structure.

**Keywords:** Traditional Knowledge, Grain Storage, Pesticides, Insects, Cow-dung, Herbs.



## Why Bael (*Aegle marmelos* L. Corrêa) is an Ayurvedic, Medicinal and Religious Plant - A Comprehensive Study

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### Abstract

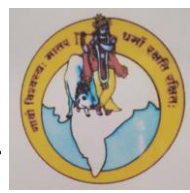
In Hindu mythology, *Aegle marmelos* or Bilva is considered as an extremely sacred tree. This medicinal plant is referred as Bael, bel, wood apple, stone apple, golden apple, Bengal quince or Japanese bitter orange. Bael tree is a rare species of deciduous tree with trifoliate leaves, native to the Indian subcontinent and Southeast Asia. The leaves of this plant are offered to Lord Shiva, a Hindu deity during various occasions especially on every Monday and Triyodashi (13<sup>th</sup> day of new moon and full moon cycle). Apart from religious beliefs, Bael is also an Ayurvedic medicine and its leaves; fruits, bark, seeds and roots are used to cure various diseases like blood pressure, dysentery, indigestion. Its fruit juice is used as tonic and energy booster. Bael fruits have immunomodulatory activity and contain flavonoids, terpenoids, coumarins, and a glucosylated propelargonidin (contain upto five units of pelargonidin). The current study aims to comprehend the purpose and real reasons for its religious uses/benefits and also to study the various chemical compounds present in Bael and its medicinal significances and the pharmacological actions.

**Keywords:** Beal, Pharmacological actions, Ayurvedic medicine, Immunomodulatory activity.





NCGV-O-22



## Bacteriological Quality of Indigenous Badri Cow Urine

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### Abstract

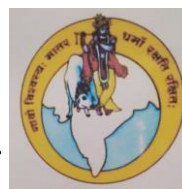
Cowpathy system of health management utilizes the cow products like urine, dung, milk, curd and ghee which showed many wonderful medicinal properties. Among these products cow urine has been caught the attention of the researchers and a lot of work is going on its medicinal properties. Though the urine of a healthy cow is almost sterile and as such it does not contain any harmful bacteria. However, it may contain several kinds of microorganisms as contaminants during collection, storage, transportation, processing and packaging. Therefore, it has been planned to study the bacteriological quality of indigenous Badri cow urine and its distillate. A total of 10 (5 fresh and 5 distillates) urine samples were subjected to cultural examination following the standard procedures of Bacteriology. Cultural examination revealed the complete absence of *E coli*, *Salmonella spp*, *Pseudomonas spp* and *Staphylococcus spp*. However, the total aerobic count varied from 528 to 780 cfu with an average of 675 cfu per ml as against of standard permissible limit of 1000 cfu per ml. These findings suggest that cow urine is safe to use in Panchagavya/Cowpathy collected from healthy indigenous Badri cows.

**Keywords:** Cowpathy, Cow urine distillate, Bacteria, Culture.





NCGV-O-23



## Antibiotics Usage in Cow Farming and its Impact on the Environment and Control: A Review

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### Abstract

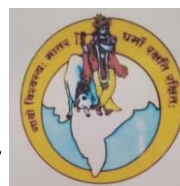
Antibiotics are a class of pharmaceuticals used to treat and prevent bacterial infections in humans, animals, aquaculture, and agriculture. India's domestic pharmaceutical market stood at USD \$42 billion in 2021 and is likely to reach USD \$65 billion by 2024 and further expand to USD \$120 billion by 2030. Antibiotics are being used in hospitals, livestock, poultry, aquaculture, animal farms, and pharmaceutical industries, resulting in huge amounts of antibiotics being discharged into the environment from ng/L to mg/L. The animal body consumes only 10-20% of antibiotics; most of it (25-75%) is excreted with urine and feces. Excreted antibiotics enter the natural environment due to a lack of knowledge and careless handling of waste that impose serious threats, such as antimicrobial resistance (AMR). It continues to pose a significant public health problem regarding mortality and economic loss. This review incorporates the impact of antibiotics used to prevent microbial diseases in cows in their natural habitats and suggests possible ways to control them. This review also helps to achieve sustainable goals in a socio-economic way for developing countries like India.

**Keywords:** Cow' Antibiotics; Antimicrobial resistance; Waste management; Pollution.





NCGV-O-24



## Occurrence of Rabies in Livestock in Assam

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### Abstract

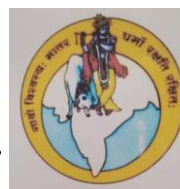
Rabies is a viral, fatal neglected zoonosis transmitted mostly through bite of dog or other rabid animals. It is preventable by timely pre or post-exposure prophylaxis. In an epidemiological study during August 2020–December 2022, as per information from field veterinarians of 11 districts of Assam, 43 postmortem brain samples from livestock suspected of rabies were collected by the Foramen magnum route and tested by lateral flow assay (LFA) on the spot. The samples were shipped to the reference laboratory for confirmation of rabies by direct fluorescent antibody test (dFAT) as per WOAHL. A significantly higher occurrence (74.42%; 32) of rabies was recorded wherein highest cases were recorded in cattle (84.00%) followed by goat (13.00%) and pig (3.00%) during the study. Such higher occurrence might be due to the practice of free ranging system of livestock rearing in village conditions having increased chance exposure of susceptible animals with the reservoir of rabies. Dog bite history was evident only in 7 (21.89%) positive cases whereas the rest 25 (78.13%) did not. The wild reservoir might have played a major role in transmission of rabies in this part of India. Amongst livestock, samples from cows either pregnant or recently calved showed significantly higher ( $P < 0.05$ ) percentage (71.00%) of positivity. The spatio-temporal distribution in 11 districts revealed Golaghat district of Assam to be a high risk zone and more positive cases during flood and post harvesting seasons. Intensive surveillance and monitoring besides pre and post exposure-prophylaxis are the urgent need to combat livestock loss due to rabies in this state as well as in the neighboring areas.

**Keywords:** Rabies, Livestock, LFA, DFA, Distribution Map, Assam





NCGV-O-25



## Isolation and Characterization of Microbial Consortia from Fresh Cow Dung and Exploring its Potential for Crude Oil Degradation

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### Abstract

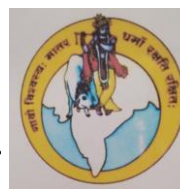
Cows and their products have known to benefit the mankind in uncountable ways since the time immemorial, from being used in the pharmaceutical applications to providing an overall health benefit to humans. Our environment is nowhere left untouched with the astounding rewards; the cow products are serving to it. In this study, fresh cow dung (of a desi cow) was collected from a cow barn, Uphaar Tea, Amingaon, nearby IIT Guwahati. A small amount of that cow dung was used to isolate a microbial consortium (MC). To further characterize the MC and determine the types of bacteria present in it, the consortia was grown in different types of media (agar plates) like, tryptone media and phenylethylene alcohol media, followed by their CFU counting. This revealed that the MC lacks the presence of gram-positive bacteria (like, *Staphylococcus* and *Streptococcus*) and carries *E. Coli* in abundance. This MC was further tested for its ability to grow in a media solely bearing petroleum based crude oil in it. Fortunately, a very convincing growth activity was observed for the isolated MC. Thereafter, the study involves exploring of the growth kinetics of the bacterial culture for five consecutive days in batch, wherein the bacterial cells were found to be in their exponential phase on the second and third day, followed by the attainment of their stationary phase. The left-out culture was then used to study their potential to secrete biosurfactants by performing various tests like surface tension measurement, oil-displacement test, drop collapsing test, and emulsification index test, which was strongly predicted by their nature of being capable to grow and feed solely on crude oil as their media component. The positive results encourage further research and foreshadow processes to maximize the oil degrading capacity by the native bacteria sourcing from cow dung.

**Keywords:** Cow dung, Crude Oil Degradation, Bio-surfactants





NCGV-O-26



## Pyrolysis: Technique for Treating Cow Dung and Characterization of its Products for Fuel Applications

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### Abstract

India is an agriculture-based economy and cows are a significant part of it, whether it is for milk production or for agriculture. The country has millions of cows and it creates a need for the development of effective treatment methods for cow dung. Pyrolysis can be an option, as it generates gaseous, liquid, and solid products which have further applications. The samples were of cows of two different breeds, Indian and foreign collected from Uphar Cattle Farm near IIT Guwahati. In this study, the cow dung samples were air-dried at 105 °C and ground to a size <150 µm. The powdered sample of 30 gm was pyrolyzed at 500°C in a fixed bed reactor at a 10°C/min heating rate. The pyrolysis experiments were designed based on the TGA analysis. The gases which were generated passed through a condenser and the condensed liquid product (bio-oil) was collected. The biochar was collected at the end of the experiment. The products obtained after pyrolysis at various temperatures were compared. The gases were analyzed using GC FID and TCD detectors for hydrocarbon non-condensable and permanent gas detection respectively. The bio-oil was analyzed using FTIR-ATR, GC-FID, and <sup>1</sup>H NMR. The biochar was analyzed using FESEM and BET for morphological and surface area analysis. The bio-oil yield for Indian and foreign breeds were 23.3 % (wt/wt) and 23.23% (wt/wt) respectively. The bio-char yield for Indian and foreign breeds was 36.67 % (wt/wt) and 38.36% (wt/wt) respectively.

**Keywords:** Cow dung; Pyrolysis; Bio-oil; Bio-char.





# Poster presentations



## Poster presentations

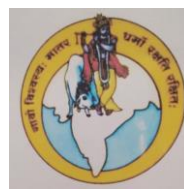
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NCGV-P-001



## Revival of ‘Cow Science’ based indigenous knowledge system, centered around the temple network of Hajo-Sualkuchi region of Kamrupa, in the pursuit of realising Sustainable Development Goals (SDGs)

Pranjal Das<sup>1,2</sup>, Rupam Das<sup>1,2</sup>, Sonali Das<sup>1,2,3</sup>, Prajna Paramita Dutta<sup>1,2</sup> Dr. Pranab Jyoti Sarma<sup>1,2</sup> Dr. Bikul Das<sup>1,2,3,4\*</sup>

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### Abstract

Cows have been always revered in this land of Bharatvarsha as they are closely associated with its native culture. In Sanatan Dharma, cows are considered as the ‘abode of Hindu deities. Also, in the Vedas, they are termed as ‘Aghnya’, one that ought not to be killed; ‘Ahi’, one that must not be slaughtered; ‘Aditi’, one that ought not to be cut into pieces. In an array of many creatures, cows were getting special status. At the present times too, the issue of ‘cow protection’ is getting prominence. However, it is not simply a political issue. We should catapult our eyes to the bigger picture. Indian temples used to be the knowledge centres in ancient times and many indigenous knowledge systems developed around the temples. Cows were an integral part of such knowledge systems. Such an example can be cited for the temple network of the Hajo-Sualkuchi region of Kamrupa. There existed an Indigenous Kamrupian Information Network (IKIN). However, owing to many reasons like foreign invasions, colonisation etc., it is extinct now like many other cultural elements of Bharat. The need of the hour is the revival of that knowledge system highlighting the aspect of ‘cow science’ in our pursuit of realising Sustainable Development Goals related problems such as climate change, global warming, and global health crisis. In this context, KaviKrishna, a not-for-profit organisation based in Sualkuchi, has been working on Indigenous Knowledge System (IKS) of the temple network of Hajo-Sualkuchi region since 2010 in collaboration with likeminded organisations including Santi Sadhana Ashram of Bashistha, Guwahati, a renowned NGO led by Hem Bhai, a leader of cow protection movement of Vinoba Bhave. We have been also researching on whey protein isolates, which has been traditionally used by JUT healers as a part of the Nigudah-yoga program. Moreover, our interest in “cow science” stemmed from our concern of chemical fertilizers instead of cow-dung, which may be contributing to the increase of cancer in our rural area. In this work, we intend to develop ideas and plan of a comprehensive project for the Revival of ‘Cow Science’ based indigenous knowledge system, centered around the temple network of Hajo-Sualkuchi region of Kamrupa.

**Methodology:** We have performed focussed group discussion (FDG) among the members of our Medical Humanities team, and then performed thematic analysis.

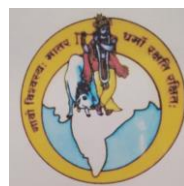
**Results:** First we have studied the major themes of SDGs and its relevance for cow science, and its implementation in our IKIN based tourism circuit.

**Keywords:** Cow science, Indigenous Knowledge, Aghnya.





NCGV-P-002



## Development of a Kamrupian Indigenous Knowledge System (IKS) course

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### Abstract

KaviKrishna is a SIRO-certified, non-profit organization located in the Kamrup district of Assam, officially established in 2010. However, the organization unofficially began as the 'Krishna Samaj' in the 1920s, with the aim of uplifting the local philosophy, weavers, and community. In its objective to turn its 'Kavi' (Vision) into 'Krishna' (Action), whether on a scientific, philosophical, or communal level, it draws inspiration from the ancient knowledge system that was prevalent in the temple centric network of Kamrupa. Considering the impending complications of epidemics and climate change in which global supply chains are at risk, it is paramount to study and implement an economic structure that is both effective and self-reliant. Therefore, in consonance with the recent mandate made by the UGC, KaviKrishna is looking to use its platform in Sualkuchi as well as its academic research work and Muga revival efforts to develop a comprehensive course on the Indigenous Knowledge System. Educating the youth on the Indigenous Knowledge System (IKS) is an important step in reviving the IKIN (Indigenous Kamrupian information network) which is based on the temple network of Kamrup. Such a task requires a multifaceted approach, and yet, has large ramifications. Simultaneously protecting the history and culture of the past while protecting the community against the future of pandemics and climate change, KaviKrishna aims to develop a sustainable and intricate model on how to systematically revive the IKS.

**Keywords:** Epidemics, climate change, Kamrupa



## Targeting the MYC-HIF2 $\alpha$ stemness pathway of cancer stem cells with medicinal plant extract derived MYC inhibitor

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### Abstract

Sualkuchi region in Assam is famous for Muga silk and the weaving culture present in the region. Our recent research indicates a presence of an Ancient Vedic Silk route in which Sualkuchi was a region from which this route passed. There was usage of medicinal plants for the treatment of ailments by this extensive network sharing system.

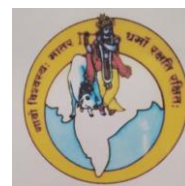
The Foundation is successful in identifying 34 Medicinal plants used by tantric healers along the Vedic silk route, in Sualkuchi- Hajo cultural complex which is used by these local healers for treating various ailments. Kavikrishna Laboratories have also conducted several research in these areas and in the medical research mostly in Cancer and TB studies.

In this study there was found that medicinal plant had a anti cancerous effect on cancer stem cells and when it was seen in non- cancerous stem cells there was no effect when compared with p53 CSCs which was suppressed when SoX-MYC-HIF2 $\alpha$  factor combined. Also, SoX-MYC-HIF2 $\alpha$  has a pathway which is shown alongside the effect of the herbal extracts on haematopoietic cells and Leukaemia cells where there is a positive effect of these extracts on Cancer stem cells. KaviKrishna aims to continue these studies with various plant extracts as a part of its research on the medical utility of these drugs so that they can be used as herbal chemotherapeutic agent against cancer cells.

**Keywords:** cancer stem cells, plant extract, Sualkuchi.



NCGV-P-004



## Exploring the Potential of Cow Urine in Cancer Therapy

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### Abstract

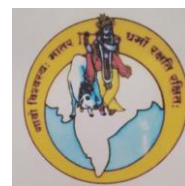
The Indian culture has regularly practiced cow urine in various religious as well as therapeutic rituals. Ayurveda emphasizes the regular intake of a specific amount of cow urine improves general health) and immunity. The *Samhitas* of Ayurveda have designated cow urine as one of the valuable animal-originated secretions with numerous therapeutic applications. The *Sushrita Samhita* (chapter 45) and *Charak Samhita* (*shloka* 102-104) describe the use of cow urine in the treatment of various ailments and diseases. The chemical constituents of cow urine, such as water, urea, minerals, salts, and enzymes, are helpful in the fight against various infections and diseases, such as allergies, flu, microbial infections, skin infections, chemical toxicity, and leprosy. Also, the minerals and ions surplus the deficient amount of necessary elements. The cow urine shows immunomodulation capabilities which promote DNA repair. Cow urine reportedly improves the bioavailability of cancer drugs and enhances their effects. Many studies have reported that the antioxidant activity of cow urine results in the elimination or reduced viability of cancer cells. The present study explores the potential of cow urine from domestic desi (indigenous) breed in cancer therapy. Raw and distilled fractions of desi cow urine have been characterized for their chemical composition and functional groups. The cell viability studies with varying amounts of cow urine were performed on the lung cancer cells (A549) and normal cells (HEK293). For the 24 hrs of incubation, the cancer cells A549 showed less than 60% cell viability for at least 40% (v/v) of both raw and distilled fraction of cow urine. The normal HEK293 cells showed ~80% viability for the mentioned experimental conditions. The decreased cancer cell viability indicates the potential anticancer characteristics of cow urine.

**Keywords:** Cow urine, distillate, cancer, cell viability, Ayurveda





NCGV-P-005



## Green synthesis of nanoparticle from Silk protein and Cow urine and their possibility to use as a nano therapeutic drug in MDR-Mtb and cancer as well as their use as ananocarrier for drug delivery system

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### Abstract

The aim of this proposed study is to synthesize nanoparticles of different metals like Gold, silver, etc, or metal oxide from silk protein extract and from cow urine and to evaluate and observe their effect in Multi-drug resistant Mtb cells and also in cancer stem cells. Further, we want to also use these nanoparticles to make nanocarriers or nano vehicles within which the desired drug can be encapsulated and released directly into targeted tissues or cells. As we already know that latent Mtb cannot be treated with the drug as it resides under the CD271<sup>+</sup> Bone marrow stem cells that exhibit ABCG2 drug efflux pump, so nanocarriers can be a possible way to target this by liposome-based or dendrimer-based nanocarrier which is like to be less recognized by ABCG2 system and may have a chance not be effluxed by ABCG2. In this way, we can target the dormant Mtb cells in the stem cell niche.

**Keywords:** Multi-drug resistant, silk protein, liposome





NCGV-P-006



## The Metaphysics Behind the Jiva Upakar Tantra of Ancient Kamarupa and its Application to Bio-social Healing

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### Abstract

Jiva Upakara Tantra (JUT) is a unique tantra philosophy of Ancient Kamrupa that emerged in the 6<sup>th</sup>-7<sup>th</sup> century. The metaphysics of this Tantra philosophy is based on the theory of Avatar Vad of Vaishnavism. According to the AvatarBaad theory, when righteousness decreases in a society, Lord Vishnu manifests himself on earth as an avatar. In his avatar forms, he has the ability to kill the demons and establish Dharma, restoring the balance of the society. Similarly, according to Jiva Upakara Tantra, when our body undergoes stress, such as illness, an Avatar Kosha is activated. The Avatar Kosha's activation in turn causes the activation of our body's energy fluids known as "Sahasa-Ojash". The enhanced flow of the Sahasa-Ojash boosts the immunity of our body as it fights against the disease. In summary, the key metaphysics of JUT is centered around the activation of the Avatar Kosha and the flow of the Sahasa-Ojash in the mind-body. Beyond the body's fitness, this AvatarBaad theory of JUT also applies to social and material factors also like how any social situation reacts during stress and how Avatar Kosha is activated to sustain and rise. On the basis of this philosophy, a satra and temple-based bio-social healing or Cikitsha Satra is developed in the Sualkuchi- Hajo area of ancient Kamrupa. KaviKrishna Telemedicine Care is operating in this area for the last two-and-half-decades to reorganize this ancient healing practice in rural health by developing the Vedic Altruism based telemedicine care at KaviKrishna Telemedicine Care. This satra/temple network is now used for our social network analysis to study Avatar Kosha in a temple network community. Covid-19 Home care study activated by KTC during the covid-19 pandemic suggesting the emergence of Avatar Kosha in Sualkuchi- Hajo cultural complex.

**Keywords:** Vedic Altruism, Avatar Kosha, Sahasa-Ojash.



## Utilizing the Vedic Silk Road Information Network for developing a novel rural public health approach

Tutumoni Baishya<sup>1,2</sup>, Lekhika Pathak<sup>2,3</sup>, Rupam Das<sup>1,2</sup>, Sailen Ch. Baishya<sup>1,2</sup>, Partha Jyoti Saikia<sup>2,3</sup> Sonali Das<sup>1,2,3</sup>, Chayanika Das<sup>1,2</sup> Bikul Das<sup>1,2,3,4\*</sup>

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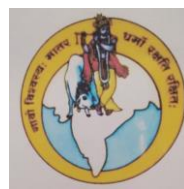
### Abstract

Vedic Jiva (living being) Upakara (altruism) Tantra (system of knowledge) or Vedic altruism is a near extinct mind-body-based social medicine approach used in the rural communities of Kamrup, Assam, India. The key metaphysic is the “Avatar”, a Vedic Sanskrit term meaning descent of a higher being to provide altruistic support to community under immense stress. Thus, the Vedic altruism based public health approach is based on Avatar Kosha, a transient, latent kosha (meaning “sheath” in Sanskrit) that emerges in a community only in times of high stress. As per the metaphysics, during the stressful times such as epidemic or pandemic, the Avatar Kosha takes on a powerful and heading role over the Pancha Kosha system (the five layers of mind-body that surround the Atman (Self) as mentioned in Taittiriya Upanishad of Vedic philosophy) to return the mind-body to homeostasis. Based on this Vedic philosophy, the tantric healers (Ojash) of rural Kamrup organized a network of local temple-based healing systems to activate “Avatar Kosha” in the community to combat diseases such as smallpox, cancer, and tuberculosis. The healers then monitor the activation of Sahasa-ojash, a mind-body healing effect that arises among the devotee due to a bio-social healing combination of Nigudah yoga-pranayama (yoga focused on breathing), herbal nutrition including diary products and kirtan yoga. During a smallpox or cholera epidemic, the entire temple network worked cohesively to maximize the effect of Sahasa-Ojash so that the putative Avatar Kosha could be awakened in the individual, as well as in the entire community. Our research indicates that the Avatar Kosha based healing may have been practiced along the Vedic Silk route that once stretched from the central Asian city of Kashgar to south east Asian city of Angkor Wat located in Cambodia. This temple- network-based bio-social medicine may have modern relevance, notably in the domain of philosophy of medical science and the development of rural telemedicine network for public health specially in the post-Covid-19 pandemic era. Consequently, it is necessary to study this bio-social, Vedic altruism-based indigenous knowledge system (IKS) of Kamrup, Assam.

**Keywords:** Vedic Sanskrit, healers, epidemic.



NCGV-P-008



## Sustainability Education in Rural Organizations play a key role in Global Health, according to Jiva Upakara Tantra

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### Abstract

**Background/Rationale:** The most pressing issue of the current day is unquestionably the rapidly worsening effects of climate change on our planet. Already, people are dying around the world due to extreme temperature fluctuations, unprecedented natural disasters, and other drastic changes. Jiva Upakara Tantra (JUT), an ancient tantric philosophy and part of the Indigenous Knowledge System (IKS) of the Sualkuchi-Hajo region, is centered around the emergence of the 'Avatar Kosha,' the sixth latent layer of the Vedantic Pancha Kosha System. JUT proposes a new theory of global health in which the Avatar Kosha of Mother earth, *Prithivi*, will activate under times of stress to reinstate homeostasis and the *dharma*. KaviKrishna's mandate of converting IKS philosophy into biological science can be replicated for the environmental sciences to benefit public health. As rural organizations across developing nations are cropping up, implementing effective sustainability measures is key in helping maintain the balance between mankind and Mother Earth. Therefore, as a part of its Medical Humanities program, KaviKrishna Telemedicine Care (KTC) will incorporate education on its IKS-based environmental health theories and begin to implement the following sustainability measures in its center in Sualkuchi as a part of a research study on the applications of Jiva Upakara Tantra in global health.

**Keywords:** Climate change, Indigenous, environmental health







NCGV-P-009



## Reviving the deteriorating Muga silk industry of Sualkuchi using the Indigenous Knowledge System based on the temple circuit of the Sualkuchi-Hajo region of Kamrupa.

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### Abstract

Sericulture or rearing of moths for the production of silk is considered as one of the oldest agricultural practices across the world. In this context, Muga, also known as the golden thread is a gift from mother nature to North-East India. The prevalent agro climatic conditions of this region make the Muga Silk endemic to it, specially Assam. Sualkuchi, a village in the district of Kamrup, Assam has been fostering the production of cloths from muga silk for many centuries. This village accounts for more than 90% of the total production of muga cloths all over the world and hence enjoys a monopoly. However, owing to many reasons, the industry is witnessing a declining trend in recent times. Causes of decline include the increasing cost of raw materials, available cheaper alternatives such as tosar silk products, air pollution and climate change affecting the production of silkworms, conversion of traditional silkworm rearing Som tree gardens to tea gardens, and the lack of a coordinated approach among the muga artisans. Importantly, many artisans don't prefer their descendants to continue this profession as it fails to attract the dignity of labour. Thus, there is a strong need to develop an innovative socio-economic method to regenerate the Muga silk-based culture and industry in Sualkuchi. In this context, Dr. Bikul Das' travel to Bhutan during 1994-98 revealed the existence of a historic silk road along central Asia and Tibet to Cambodia (1), through which silk traders possibly traded Muga silk for Hindu and Buddhist temple complexes along this road that spread Vedic culture in Central and South East Asia. This historic, "Vedic Silk Road" has several legends, including a story that Buddha was given a holy Muga silk bastra during his Nirvana, and he walked from Sualkuchi to Hajo; many Tibetan used to visit these sites for pilgrimage purposes (1). To take forward Dr. Das's preliminary findings, KaviKrishna has been working since 2010 on developing an innovative Indigenous knowledge system (IKS) based socio-cultural method (2) prevalent in the temple circuit of Sualkuchi-Hajo cultural complex. Specifically, we intend to reduce stress among the muga artisans by applying the metaphysical Avatarkosha method of Jiva Upakara Tantra (3).

Keywords : Sericulture, Monopoly, Vedic culture.





NCGV-P-010



## Chemical Analysis of Indigenous Cow Urine

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### Abstract

A total of 10 urine samples were aseptically collected from indigenous Badri cows maintained on grazing in Uttarakhand. These samples were processed for chemical analysis as per the standard procedures using sophisticated analytical instruments. The cow urine taken as such for the analysis in this paper. The <sup>1</sup>H-NMR spectra of Cow Urine detect the allylic protons of the fatty acid chain, -CH<sub>2</sub>-CH group which appeared at 2.01-2.22 ppm and the protons of the carbon next to the nitrile linkages, H-C-N are appeared at 2.3 ppm. Moreover, peaks at 3.3-3.4 ppm belong to -OCH<sub>3</sub> group. The aromatic carbons present in the groups can be observed at 7.3-7.4 ppm, respectively. In addition, peaks at 8.4 ppm correspond to the electron withdrawing groups attached to benzene ring like NO<sub>2</sub>. FTIR analysis were to obtain the spectra 1 % crystallized struvite, mixed and ground with 99 % KBr. Tablets of 10 mm diameter were prepared by pressing the powder mixture at a load of 5 tons for 2 min. The spectrum was taken in the range of 400–4,000 cm<sup>-1</sup> with 4 cm<sup>-1</sup> resolutions. HRMS tentative compounds in cow urine like Creatinine, (carboxymethyl)dimethyl(1-oxooctadecyl) ammonium hydroxide, Cholest-5-en-3β-yl (Z)-13-docosenoate which has a further medicinal value are further investigated using molecular modelling. The structure and properties of these compounds have been explored using DFT calculations.

**Keywords:** Cow urine, FTIR, Indigenous.



## Removal of methylene blue dye using cow dung based biosorbents from aqueous solution

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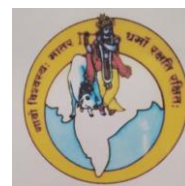
### Abstract

The use of biosorbents is increasing nowadays due to their eco-friendly nature and cost-effectiveness for the removal of toxic dyes from wastewater. In this regard, cow dung can act as a suitable candidate compared to other synthetic adsorbents like activated carbon due to its zero-regeneration process factor. Also, the research in the field of cow waste adsorbent is very limited, and we want to recognize some areas of knowledge that could be investigated in this field. Keeping this in mind, the present work aims to utilize dried cow dung (CD) of different cow breeds (Desi and Sahiwal) as a biosorbent to remove methylene blue (MB) dye from an aqueous solution. For this, the CD was first pyrolyzed at 500°C for 3 hrs to produce CD-biochar (BC), which was further hydrolyzed to form CD-BC-Activated (AC). Also, the prepared biosorbents (CD and CD-BC-AC) were characterized using various analytical techniques i.e., FTIR, TGA, XRD, EDS, and zeta potential, to reveal their various properties. The analysis showed that the formed biosorbent (CD-BC-AC) comprised CD characteristics. Furthermore, the MB removal % for Desi and Sahiwal CD was found to be 93.8 and 94.3, respectively. However, in the case of CD-BC-AC the % removal was increased up to 97 and 95 for Desi and Sahiwal, respectively. The environmental conditions for both cases were kept at pH-11, contact time of 18 hrs, and initial MB concentration of 10 mg/L. To summarize, CD-based materials showed promising adsorbent behaviour for the removal of MB dye from aqueous solution

**Keywords:** Adsorption; Pyrolysis; Cow dung; Dye removal



NCGV-P-012



## Comprehensive and Empirical Profiling of Cow Colostrum Proteome Using nLC-ESI-MS/MS and Computational Approaches

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### Abstract

Colostrum is a nutrient-rich, immunity booster fluid secreted by cows during the initial days after parturition. It consists of high levels of immunoglobulins, growth factors, and other bioactive components that are essential for the development and growth of newborn offspring. Despite substantial research on the cow colostrum proteome using several analytical methods, such as mass spectrometry-based proteomics, it has not yet been thoroughly characterised. In this study, we aimed to conduct a comprehensive and empirical proteome profiling of cow colostrum using *In vitro* simulated gastrointestinal digestion of whey, colostrum fat globule membrane (CFGM), and casein samples followed by nanoflow liquid chromatography-electrospray ionization-tandem mass spectrometry (nLC-ESI-MS/MS). The samples were subjected to sequential *in vitro* digestion using digestive enzymes pepsin and pancreatin. The resulting protein hydrolysates were subjected to nLC-ESI MS/MS identified using a comparative database search. Our results showed that the cow colostrum proteome was highly complex, with a total of 325 proteins identified across all samples. The whey fraction had the highest number of identified proteins (174), followed by casein (87), and CFGM (64). During Gene Ontology (GO) and analysis, the identified proteins belonged to various functional categories, including immune defence, growth and development, and metabolism. In addition, Kyoto Encyclopaedia of Genes and Genomes (KEGG) pathway enrichment analysis showed that these proteins grouped under 3 major categories namely, cellular component, molecular function, and biological process. Furthermore, subcellular localization of the proteins was also performed. In conclusion, our study provides a comprehensive and empirical proteome profiling of cow colostrum using *in vitro* digestion of whey, casein, and CFGM samples followed by nLC-ESI-MS/MS detection. The identified proteins can be a significant resource for future research into the functional characteristics of cow colostrum and its potential uses in nutrition and health.

**Keywords:** Cow, Immunity booster, nLC-ESI-MS/MS.





NCGV-P-013



## A Sociocultural Analysis of Cows in India: A Critical Study

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### Abstract

Cows are domestic animals since the Indus Valley civilization and play an important role in the socio-economic perspective [1]. Various Cattle, including cows, were domesticated and used for various purposes such as plowing fields, providing milk, and as a source of meat. Cows have been considered sacred and revered in India for thousands of years, and the backbone of the village economy [2]. In recent times, there has been a spread of confusion and unfounded beliefs surrounding cows, which have been unnecessarily politicized instead of highlighting the genuine importance of cows in terms of social development [3]. The aim of this paper is to highlight the true significance of cows in social contexts, their role as a source of unquestioning faith, their political implications, and the need for a proper perspective on this matter. Cow in ancient culture: There is archaeological evidence of the domestication of Ox and Bull in the Indus Valley Civilization, which existed from 3300 BCE to 1300 BCE [4]. The discovery of cattle bones, along with the presence of large cow pens in some of the major settlements, suggests that cows played an important role in the economy and daily life of the people of the Indus Valley Civilization. Additionally, seals with images of bulls have also been found, suggesting the cultural and symbolic significance of cattle in the region. The Vedas, which are the oldest sacred texts of Hinduism, mention cows extensively and highlight their importance in society. In the Rigveda, for example, there are hymns dedicated to cows, and they are described as a symbol of wealth and prosperity [5]. In India, cows are considered to be sacred animals, and their protection and reverence are deeply ingrained in the country's culture and religious beliefs. Hindus, who make up the majority of the population, view cows as symbols of motherly love, selflessness, and the divine bounty of nature. The cow is often associated with the goddesses of wealth, health, and motherhood, and it is believed that serving and protecting cows can bring blessings and good karma. In contrast, other communities, such as Christians and Muslims, consider beef to be a significant source of non-vegetarian food and consume it regularly.

**Keywords:** Socio-economic, sacred animals, Cattle.





NCGV-P-014



## Fostering Cows: A Cognitive Approach Towards Promoting Environmental Well-Being and Human Health

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### Abstract

The excessive use of chemical fertilizers and pesticides has caused severe health hazards for humans and degradation in soil fertility. The Green Revolution, which began a few decades ago, aimed to increase yield using chemical fertilizers, pesticides, and hybrid seeds. However, presently, a large number of people from the regions where the Green Revolution started are found to be suffering from incurable and deadly diseases due to excessive intake of hazardous chemicals contained in food grains and vegetables. The groundwater in these areas has also been polluted to a considerable extent. The use of modern tractors for plowing agricultural lands degrades soil fertility by reducing the soil's ability to retain moisture content. Furthermore, the consumption of fossil fuels in the agricultural sector also leads to some environmental pollution. To mitigate these health and environmental issues, cow-based agriculture seems to be a flourishing alternative. The present study focuses on the by-products of cows fostered at our house in the town area, aimed at creating awareness among society and encouraging people to keep cows at home to get manifold benefits, including health and wealth.

**Keywords:** Cow based cultivation, Cow dung as organic fertilizer, Biogas, Soil fertility, Economic analysis of cow fostering.





NCGV-P-015



## **Panchagavya Ghrita: The Magical Medicament to treat Liver Disease/Disorder**

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### **Abstract**

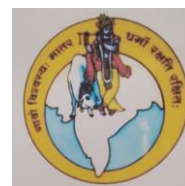
*Panchagavya* as the name suggests is composed of five cow products i.e. its Milk, Curd, Ghrita, Urine and Cow dung juice. Indian customs have used products obtained from cow since time immemorial, it's always ingrained in our rituals, healing practices, and the use continues as far as potent ayurvedic medicinal preparations in the form of *Panchagavya Ghrita* or *Mahapanchagavya Ghrita* which aims alleviating diseases like *Apasmara, Unmad, Udarroga, Gulma, Arsha, Bhootanasha, Kshaya*, and the other underlying diseases. *Gavya* (Cow Products) has the boon of treating diseases which go beyond the comprehension of human control like *Grahavesha* the *Asta Mahagada* as well given its accessibility in *Kalyuga*. It is indeed a God gift to humankind as it is truly complete in itself, eradicate poverty, pollutions free environment, enhance soil fertility, immune-modulation, rejuvenating and nourishes every lining being like a "Mother". Therapeutic effects include analgesic, hepato-protective, wound healing, anti-microbial, anti-cancerous and anti-hemorrhoid. *Panchagavya* could be considered the Mind, Body and Soul of fundamental healing in Ayurveda with the advent of *Kamdhenu* during the churning of *Kshirsagar*, since the cow worshipping and using its products has always helped human prosper and grow.

**Keywords:** Panchagavya ghrita, Asta mahagada, Yakrit roga





NCGV-P-016



## Futuristic challenges and Strategies for waste Management in Livestock Farms

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### Abstract

Livestock sector of Bharat includes animal husbandry activities of Large Ruminants (Cattle, Buffalo), Small ruminants (Sheep and Goat), Poultry, Piggery etc playing a crucial role in nutritional security and good health of nation. Livestock industry developed with Agriculture as a source of fertility of soil by manure and energy by draught power. The increase in population and per capita income resulted in intensification, specialization of each farming enterprise. The dwindling land holdings increased the density of livestock resulting in more contamination of natural resources with animal wastes and manure posing a threat to global warming. Livestock and fodder related activities generate a major chunk of waste generated in each type of farming enterprise needs to be channelized for better utilization and reduce pollution to preserve/ mitigate the climate change. A large portion of the detrimental effects of intensive livestock production relate to poor management of livestock excreta, which contains large amount of organic matter and mineral nutrients (Sims et al.2005).The waste management is essential for sustainable and eco-friendly development of livestock sector. The excreta of livestock can be converted into manure, energy generation and biogas production which are better utilized as per the sustainable goals initiated by FAO. This paper initiates to find out the challenges and strategies to reduce/utilize the waste for better purpose.

**Keywords:** Livestock, draught, eco-friendly.







NCGV-P-017



## Isothermal Bioreactor for Biogas Generation: Design, Development, Performance Evaluation and Optimization

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### Abstract

This study aimed to design and develop an isothermal bioreactor for the generation of biogas from dairy waste products such as cow dung and whey. The bioreactor was designed and developed using engineering principles and practices and has a 45 L capacity for waste processing. The maximum deformation, equivalent stress, and factor of safety of the blade were calculated as 3mm, 242 MPa, and 1.2, respectively, from the stress analysis. The predicted life of the blade from fatigue analysis was  $6.6 \times 10^5$  cycles. The maximum deformation and equivalent stress of the biodigester were also calculated as  $8 \times 10^{-5}$  mm and 1.93 MPa, respectively. The predicted life of the biodigester from fatigue analysis was infinite. CFD simulation was used to model the temperature and velocity profile of the fluids in the system. The predicted time for reaching the optimal temperature for biogas generation using water in the biodigester jacket at 40, 50, and 60°C was 15, 2.5, and 1.25 minutes, respectively. The performance of the developed system was determined under different conditions, and the effect of temperature, mixing, feeding, and co-digestion on biogas quality, biogas yield, COD reduction, and energy value was evaluated. The optimized condition using the Taguchi orthogonal array method was 40°C as slurry temperature and 4 times/day as mixing frequency. The developed isothermal bioreactor can be used as an effective solution for the existing problems of conventional biogas reactors, and the study provides insights into the design and development of bioreactors for better heat transfer and improved efficiency.

**Keywords:** Biogas, Bioreactor, Heat transfer.





NCGV-P-018



## Assessment of Runs of Homozygosity in Karan Fries Crossbred Cattle

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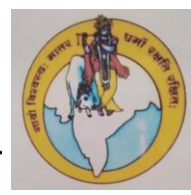
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### Abstract

Runs of homozygosity (ROH) are an indicator of genomic autozygosity, defined as long and continuous stretches of homozygous genotypes. The ROH are created by transmitting identical haplotypes from parents to their offspring. For augmenting the milk production in the country to meet the demand of milk for human consumption Karan Fries crossbred cattle was developed by crossing *Bos taurus* with *Bos indicus* around seven decades back. The genomic evaluation for inbreeding is essential to find out the homozygosity developed due to common regions inherited from divergent parental population. Hence, present study was undertaken on 44 Karan Fries cattle genotyped by 777k BovineHD BeadChip. The quality filtration was performed using Plink 1.9 using standard attributes of  $-hwe$  (0.00001),  $--maf$  and  $-geno$  (0.01) flags in the software and 734272 SNPs passed the quality control filter. The standardization of parameter for defining ROH segment in crossbred is necessary due to involvement of two divergent parental populations, hence a rule-based approach was performed and finally sliding window's length at 46, threshold of 0.061, homozygous-density 3.6, homozygous-gap 100 and its homozygous-kb 150 was found optimum and followed in subsequent study. In all 24107 homozygous segments were identified as ROH segments that were further classified into six major groups (0.15-0.5, 0.5-1, 1-4, 4-8, 8-16 and >16Mb). The ROH class 150-500 Kb had the maximum genome coverage (4.80%). The majority of the animals have ROH values ranging from 0.15-8 Mb and only 17 animals had ROH lengths >16Mb in size. The average length of ROH was found to be 384.5 Mb in the present study. The  $F_{ROH}$  mean obtained was 0.08 for Karan Fries cattle, whereas individual inbreeding rate ranged from 1% to 14% in the population under study. The longest ROH segment (43979Mb) was found in Karan Fries cattle on chromosome number 3 i.e an autosome however the highest chromosome coverage on chromosome number 8 was obtained. The Parameter settings and density of data set was found to strongly influence ROH detection especially in crossbreds. The results highlight the strengths and unique features of rule-based approaches and its potential for ROH analysis in animal populations. It can be concluded that the genomic inbreeding assessed by ROH gives reliable and precise estimate of homozygosity at genomic level and to be considered for evaluation of genomic architecture of the population.

**Keywords:** Runs of homozygosity, Genomic inbreeding, SNP genotyping, Karan Fries, genome coverage.





NCGV-P-019

## Therapeutic Uses of Gomutra (Cow Urine) in Various Diseases

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### Abstract

Different types of mutra are described in Ayurvedic literature to increase the agni and as a vata kapha shamaka property and in the treatment of different diseases but Gomutra is highly effective in all the mutras. Gomutra (cow urine) is abundantly used in Ayurveda for treatment of several disorders such as Vataja, Kaphaja Roga, Udararoga, Krimi, Kushtha, Kandu, Agnimandhya, Shoola, Gulma, Vibandha, Shopha, Anaha, Pandu, Aruchi, Visha, Shwitra, Arsha, Mukharoga, Akshiroga, Kilasa, Kasa, Shwaas, Shotha, Kamala, Gudashool, Atisaara, Mutraroga, Karnashool. There are several Ayurvedic Medicines with Gomutra as Ingredient like Tailpanchak, Shwetkarveeradya Tai Kanakksheeri Tail, Panchgavya Ghrit, Mahapanchgavya Ghrit, Sanjeevani Vati, Mandur Vatak. Kashishadya Tail, Marichyadi Tail, Bilvadi Tail Vajra Tail., Dhaturadi Tail. There are several Ayurvedic Medicines with Gomutra as Anupan and Sahpan (Vehicle) like Sahpan of Punarnavadi Kwath, Chavyadi Kwath, Sakhotaktwakkwath, Anupan (vehicle) of Navayas Churn, In Kaphaj Gulma, Anupan (vehicle) of Kankayan Vati, In Pandu, Anupan of Yograj Guggul etc. A systematic work needs to be carried out on chemical nature, biological activity, microbiology and pharmaceutical aspects and mechanism of bioactive compounds in Gomutra. In the past due emphasis has not been given to the cow therapy which needs attention of scientific community.

**Keywords:** Gomutra, cow urine, Anupan and Sahpan.





NCGV-P-020

## Clinical Uses of Gomutra (Indigenos Cow Urine)

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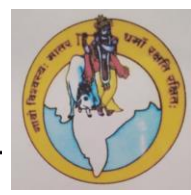
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### Abstract

Indigenous cow is boon to society and considered mother due to its nurturing nature. Cow urine along with its milk products have been shown to have medicinal properties. This review paper highlights on clinical use of cow urine in various diseases. Ayurveda defines the properties of cow urine as guna, taste, use in different diseases and effect on dosha pacification. It is commonly used in the treatment of psoriasis, eczema, vitiligo, and anemia, to kill worms, jaundice, constipation and many more. Many Ayurvedic medicines contain cow urine as one of the main ingredients as in *sanjivani vati*, *punarnava mandoor*, *panchgavya ghrita*, *gomutra haritaki* etc. *Gomutra varga* in Ayurvedic text is the category of urine that defines the specific properties of animal urines in relation to disease. Chemical composition of cow urine has been found to be responsible for the therapeutic uses of it. It contains urea, creatinine, aurum hydroxide etc. Fresh cow urine is used in clinical field for the treatment of various diseases. Phenolic content in cow urine makes it beneficial for skin disease management. It has also been shown to repair the damaged DNA. Cow urine has found to have antibacterial, bio enhancer, antifungal, antihelminthic, antineoplastic, immune enhancer properties. It has shown to kill many pathogenic bacteria like *E coli*, *S. typhi*, *S. aureus* etc. Immunomodulatory activity of it is due to presence of aurum hydroxide. Cow urine has many health benefits that make its use in clinical practice.

**Keywords:** Gomutra, sanjivani vati, antineoplastic, *E. coli*, immunomodulation.





NCGV-P-021

## Indigenous Badri Bull Urine: A Bacteriological Analysis

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### Abstract

The cow urine distillate was found to increase immunity and phagocytic activity of macrophages. It has now been used in several Ayurvedic preparations by Gaushalas as a source of their income. However, the urine of males (Nandi/ Bulls) are still not in use and these are maintained in gaushalas without any income while there is huge expenditure is done on their maintenance. Therefore, it has been thought to carryout research on male urine also. Keeping in view problems of gaushalas facing management of male animals and expenditure on feed and fodder with no financial gains also, it was planned to study the urine of males (Nandi/ Bulls) for its effect on immunity. Though the urine of a healthy bull is almost sterile and as such it does not contain any harmful bacteria. However, it may contain several kinds of microorganisms as contaminants during collection, storage, transportation, processing and packaging. Therefore, it has been planned to study the bacteriological quality of indigenous Badri bull urine and its distillate. A total of 6 (3 fresh and 3 distillates) urine samples were subjected to cultural examination following the standard procedures of Bacteriology. Cultural examination did not reveal the presence of *E coli*, *Salmonella* spp, *Pseudomonas* spp and *Staphylococcus* spp. However, the total aerobic count varied from 484 to 710 cfu with an average of 607 cfu per ml as against of standard permissible limit of 1000 cfu per ml. These findings suggest that Badri bull urine is safe to use in Panchgavya/cowpathy collected from healthy indigenous Badri bulls.

**Keywords:** Cowpathy, Bull urine distillate, Bacteria, culture.





NCGV-P-022



## Importance of Cow Products in Yogic Practices: An Analysis for Healthy Life

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### Abstract

The Cow is a source of livelihood and prosperity since ancient times. It is considered as a holy animal because of its 'Satvika' nature. From the beginning to the end of one's life cycle, the human being depend on Cow's milk and other byproducts of the same. There are many qualities in Cow's milk and Ghee (clarified butter). Both Ayurveda and Yoga believe that the mind and body affect each other. When Ghee is consumed by the body, it affects the mind too. Daily consumption of Ghee helps in Yogic practices, thereby strengthening the body and mind. Ayurveda has considered that Ghee is the healthiest source of consumable fat, with several beneficial properties. According to Ayurveda, it enhances the longevity and protects the body from various diseases. It increases the digestive fire (Agni) and improves metabolism. Milk contains the properties to improves immune system and Ghee lubricates the connective tissues, increases flexibility of the body, which is essential for the Asana Practice. Ghee plays a vital role in performing Shatkarma (Six purification technique) also viz. Shankha Prakshalana, Sutra Dhauti etc. It gives tremendous effect to enhance the practice. Apart from that, Cow's Ghee and milk is used in religious rituals and traditional events. Ghee has multiple properties which pacify Tri Doshas; Vata, Pitta and Kapha in moderation.

**Keywords-** Cow Ghee, Milk, Healthy life, Yoga, Ayurveda.





NCGV-P-023



## The Significant Role of Indigenous Cow Products in Yogic Practices and Healthy Living

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### Abstract

In the current scenario, with drastic rising rates of Diabetes, overweight, obesity, and lifestyle disorder, 'Healthy living and yogic practices' need to become a way of life for more Indians. Making healthy food choices, staying physically active, and maintaining a healthy weight, mental health, spiritual strength, and social well-being are core areas for the World Health Organization. And for that, balanced nutrition, daily exercise, and adequate sleep are the foundations of healthy living. A healthy lifestyle keeps us fit, energetic, and at reduced risk for disease. A big part of healthy life depends on eating habits. Indigenous cow products like; Ghee, Milk, Curd, Buttermilk, and Punchgavya (Dung, Urine, Curd, Milk, and Ghee) are helpful for healthy living and yogic practices. According to Ayurveda, cow products are food, medicine, and more. These products are beneficial not only in healthy living but also for yogic practice. Ancient yogic textbooks like Hathyogpradipika, Gherend Samhita, Yog washishet, and Bhagwad Gita remarked on the numerous benefits of indigenous cow products for getting the best result for the practitioners. Ghee helps to detoxify the deep tissues of the body. As it cleanses the tissue, it rejuvenates them and recommends ghee for yoga practitioners because it lubricates connective tissues and prepares the body for stretching. Also, many nutrients need fatty acids, and ghee uses as a delivery system for healing herbs. Therefore, it is beneficial to know the vital role of indigenous cow products.

**Keywords:** Ghee, Cow science, Yogic practices, Health.





NCGV-P-024



## The vital role of indigenous cow milk vs Jersey cow for healthy living

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### Abstract

In India, the cow is known as Gaumata or Kamdhenu for its nurture property. We get many products from cows, like- milk, curd, dung, panchgavya, Ghee, etc. All the cow's products help prevent many diseases. But still, pathological problems are spreading so much. Only cow product is not sufficient for a healthy life. Although, only Indigenous cow products are best for health. The native national cows of the Indian Subcontinent are known as desi cows. Desi cows can be recognized by their hump on their back and their extended dewlap. These cows are familiar to the hot, humid weather of the tropical Indian environment. Hence, they can live comfortably in India. The milk of desi cows contains the A2 protein, which is a crucial protein for the human body. Desi cow dung and urine are known to offer a variety of therapeutic qualities that are applied in Ayurveda medicine. The wild animal "Urus" was crossed with other breeds of cows to create the hybrid known as Jersey cows. To produce high quality and large amounts of meat, crossbreeding was done throughout Europe. This crossbreed is represented by current Jersey and HF cows. The milk from these foreign cows includes the A1 protein, whereas the milk from desi cows has the A2 protein. According to experts, the cow dung and urine of jersey (Hybrid) cow are not considered for use in medicinal purposes in Ayurvedic medicine and Panchagavya therapy although indigenous cow product considered for use in medicinal purposes.

**Keywords:** Indigenous, Panchgavaya, Hybrid, Ayurvedic, A2 Protein.







NCGV-P-025



## Relevance, Global Significance and Recent Trends In Panchagavya Research

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### Abstract

Panchagavya has a significant preventive, curative and dietary benefaction in ancient Indian medicinal treatises. Due to the increasing prevalence of metabolic disorders, there is a dire need to modify the dietary regimen to an extent that it should not only prevent the causation of metabolic disorders but also acts as an anti-oxidant, immune modulator, anti-neoplastic, anti-histaminic and rejuvenating factor. The indigenous cow's milk, ghee, curd provides a nutrient and anti-oxidant rich dietary supplement whereas the cow urine is an effective antibacterial agent, bio-enhancer of some antimicrobial drugs, antifungal, anthelmintic, antineoplastic action, is useful in hypersensitivity reactions. Recent researches have also proved the chemotherapeutic potential of the indigenous cow urine.

**Keywords:** Panchagavya, Anti-oxidant, Immune modulator, Anti-neoplastic, Anti-histaminic, Chemotherapeutic.





NCGV-P-026



## A Comparative Study on Antimicrobial Activity of Urine Distillates, Fresh Urines, Herbal Antimicrobials

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### Abstract

For comparative antimicrobial activity of ciprofloxacin, herbal antimicrobials, different urine distillates, fresh urines were tested on 782 strains of bacteria of >120 species isolated from clinical samples (300) submitted to the Clinical Epidemiology Laboratory for identification and antimicrobial susceptibility testing profiles to be used by clinicians for therapeutic interventions, isolated from environmental sources (450) including soil, water, air, plants and food samples, and 32 strains procured from reference laboratories. Important bacteria included were *Acinetobacter lwoffii*, *Aeromonas hydrophila*, *Bukholderia cepacia*, *Edwardsiella tarda*, *Escherichia coli*, *Klebsiella pneumoniae*, *Salmonella enterica*, *Stenotrophomonas maltophilia*, *Staphylococcus aureus*, *Streptococcus pneumoniae* etc. For testing fresh urines of buffalo, dog, deer and humans were locally procured, fresh cow urine samples, and cow urine distillates were procured from eight different commercial sources. Two surface cleaner and disinfectants made of cow urine were also procured from commercial sources. Distillates of urines from Sahiwal, Tharparkar, Virdawani and Murra buffalo heifers, and human urine was made in-house in Division of Livestock Products and Technology, ICAR-IVRI, Izatnagar. Herbal antimicrobials including Ajowan oil, Holy basil oil and Cinnamon oils were procured from Sigma Aldrich, ciprofloxacin discs used were from Diffco BBL and for determining extended  $\beta$ -lactamase production E-strips were procured from Biomeiux Ltd. For determining antimicrobial activity of all urine preparations broth assay (50% urine preparation in Mueller Hinton broth) was performed after filter sterilizing the preparations. For herbal antimicrobials, ciprofloxacin and ESBL disc diffusion assays were performed on Mueller Hinton agar plates, and for determining antimicrobial activity of surface disinfectants agar well diffusion assay was performed. Most of the Gaumutra (fresh/urines or disinfectants) procured from commercial sources were contaminated and failed in sterility test, indicating poor microbial quality and safety of urine products in the market and necessitate for urgent quality control of urine preparation sold in market. Among herbal antimicrobials cinnamon oil was the best herbal antimicrobial followed by ajowan oil and holy-basil oil inhibiting 89.17%, 73.42% and 59.07% test strains, respectively. All in-house made urine distillates had good antimicrobial activity, best being urine distillate of Tharparkar heifers followed by that from Sahiwal, Murra buffalo, Vrindavani heifer urine and human urine inhibiting 82.7%, 81.88%, 60.38%, and 18.7% of the bacterial strains tested, respectively. The fresh urine of cows purchased from 4 sources (PS, MB, Hanumat Hetha), buffalo heifers, humans, deer and dog inhibited 30.6%, 64.5%, 5.6%, 25% and, 0.0% of test strains, respectively. The observation indicated that properly made urine distillate have good antimicrobial activity, and indigenous cow breed's urine distillate is better than buffalo and cross breed cow urine distillates as antibacterial. From market, none of the five urine distillates was comparable even to in-house made buffalo urine distillates (Ark), and had poor antimicrobial activity. Among the fresh urines tested, many of fresh cow urines available in the market are not safe being non-sterile and have poor microbiological quality and had *Enterococcus faecalis* and *Pseudomonas aeruginosa* contamination.

**Keywords:** Antimicrobial activity, disc diffusion, Cross breed



## Removal of methylene blue dye using cow dung based biosorbents from aqueous solution

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### Abstract

The use of biosorbents is increasing nowadays due to their eco-friendly nature and cost-effectiveness for the removal of toxic dyes from wastewater. In this regard, cow dung can act as a suitable candidate compared to other synthetic adsorbents like activated carbon due to its zero-regeneration process factor. Also, the research in the field of cow waste adsorbent is very limited, and we want to recognize some areas of knowledge that could be investigated in this field. Keeping this in mind, the present work aims to utilize dried cow dung (CD) of different cow breeds (Desi and Sahiwal) as a biosorbent to remove methylene blue (MB) dye from an aqueous solution. For this, the CD was first pyrolyzed at 500°C for 3 hrs to produce CD-biochar (BC), which was further hydrolyzed to form CD-BC-Activated (AC). Also, the prepared biosorbents (CD and CD-BC-AC) were characterized using various analytical techniques i.e., FTIR, TGA, XRD, EDS, and zeta potential, to reveal their various properties. The analysis showed that the formed biosorbent (CD-BC-AC) comprised CD characteristics. Furthermore, the MB removal % for Desi and Sahiwal CD was found to be 93.8 and 94.3, respectively. However, in the case of CD-BC-AC the % removal was increased up to 97 and 95 for Desi and Sahiwal, respectively. The environmental conditions for both cases were kept at pH-11, contact time of 18 hrs, and initial MB concentration of 10 mg/L. To summarize, CD-based materials showed promising adsorbent behaviour for the removal of MB dye from aqueous solution

**Keywords:** Adsorption; Pyrolysis; Cow dung; Dye removal.



NCGV-P-028



## Cow Ghee and its Therapeutic Use

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### Abstract

Ayurvedic system of medicine, ghee plays a vital role, both as a vehicle to deliver the active constituent and as a base for incorporating active components to formulate the dosage forms. Ayurveda also supports the co-administration of ghee along with other remedial treatments. Ghee-based formulations, i.e., *Ghrita*, are developed for targeted delivery and enhanced bioavailability of hydrophobic botanicals. The study revealed that desi ghee is a rich source of essential fatty acids (omega 3 and omega 9), and vitamins like A, D, E, and K. The health benefits of cow ghee are memory enhancement, lowering bad cholesterol, preventing skin and promoting skin health, maintaining the digestion process, generating energy, etc. Ghee has demonstrated various medicinal properties such as anti-inflammatory, antineoplastic, vision enhancing, and fasten wound healing. It helps treat skin and gastrointestinal diseases and has beneficial effects, including immunostimulants, anticholinergic activity, anti-asthmatic effect, helps against paralysis, etc. This review aims to explore the health and medicinal benefits of Ghee.

**Keywords:** Ghrita, Cow ghee, Ayurveda, Panchagavya.





NCGV-P-029



## Expulsion and Practical Utilization of Cow-dung - an annoying Solid waste

### As a legitimate Bio-engineered compounds

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#### Abstract

India is one of the critical producers of bovine animal and from them cow squander explicitly which are bounteously open over the country. Cow excrement is poison, extreme hurtful, perilous, destructive or mutagenic or even harmful and pathogenic in nature. The toxins out of cow excrement incorporate strong, radiating putrid gases and fluid run off containing risky dangerous foreign substances (dioxins and chlorophenols and arsenic), microbes and vaporous contaminations (ozone harming substances, NO<sub>x</sub>, SO<sub>x</sub>, methane and higher hydrocarbons) The unmistakable qualities of Cow excrement has restorative advantages. Helpful advantages can be accumulated from cow excrement like antimicrobial particularly hostile to bacterial and against contagious impacts. Bioremediation of drugs, pesticides, and petrochemicals with Gomeya/cow fertilizer has been laid out. It fills in as a skin tonic and compelling in treating psoriasis and dermatitis. The combinations of squashed neem leaves and cow fertilizer helps against bubbles and intensity rashes. The huge number of bacterial species can also be isolated and characterized from cow dung with different morpho-biochemical parameters. Anaerobic fungus like (Neocallimastigomycota), Eupenicillium bovis, a new species from dry cow manure has also been isolated. Cow dung based Herbal mosquito repellent, organic sunscreen agent (Sun Protective). Organic and mineral composition of Gomeya (cow dung) from Desi and crossbred cows' comparative study were reported. The other remedial measures are syntheses of some of the worth-mentioning products include bio-plastics, or bio-textiles, α-cellulose, pulp, paper and card boards for sustainable packaging, bio-gas, bio-oils and fermentation products like ethanol, bio-composting and bio-fertilizers (N-P-K), nano-cellulose and MFC, microbial products (bacteria and enzymes), activated carbon, and fillers, bricks, silica, ceramics, and silicon-based semiconductors. This review discusses about the availability of the bio-waste cow dung, extent of health hazardous pollution, disposal alternatives, the existing traditional therapeutics, the respective medicinal property of cow dung and economic exploitation of this invaluable natural bio-products to a myriad of bio-products for societal use.

**Keywords :** Bovine, biochemical parameters, Bioremediation.





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KaviKrishna is a SIRO-certified non-profit research organization that's main mandate is to study the ancient tantric medical philosophy of the Sualkuchi-Hajo region, Jiva Upkara Tantra (JUT) and convert its ideas into a testable scientific hypothesis. Already, important discoveries have been made relating the philosophy to cancer, TB, and altruism on a microbiological level. KaviKrishna's other main aim is to uplift the culture and history of the Sualkuchi-Hajo region through its Medical Humanities team. The team is centred in the heart of Sualkuchi at its telemedicine clinic, KaviKrishna Telemedicine Care (KTC), which provides free healthcare to the rural community. After 13 years of preliminary studies, research, and outreach work, KaviKrishna is now looking to expand its efforts to further help the people of Sualkuchi and greater Kamrup gain economic, social, and cultural independence through engaging with their own Indigenous Knowledge System (IKS).

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