



# NRCC NEWSLETTER

## Camel Research

October - December, 2022 Volume 01 Issue 03



### *From Director's Desk*

Winter season is very important for camel husbandry and welfare, because breeding activities are largely limited during this period. Though camel can tolerate both extreme hot and cold climates, they remain under stress during winters. Females give birth to calf; pregnancy and lactation put additional nutritional requirement and seek special care and attention of camel farmers. Male exhibit sexual behaviour (Rut), their feed intake reduces significantly and they lose body weight to a great extent. In rural areas, camel farmers prepare a special nutritional supplement using mustard oil and gur and it is believed that supplementation of this mixture augments reproductive and productive potential of both male and female camels. Sometimes, camel handlers particularly those handling camel driven carts, fail to understand the changes in mental status and behaviour pattern of male camel in rut. Due to ignorance, negligence or unethical behaviour, they are attacked by male camels and few may succumb to fetal injuries due to camel biting in neck region. Every year, during winters sporadic reports of such unfortunate events come into light from various parts of Rajasthan. Hence, I would like to advise camel farmers to be attentive and tactful while handling male camel in rut.

**Dr Artabandhu Sahoo**  
Director

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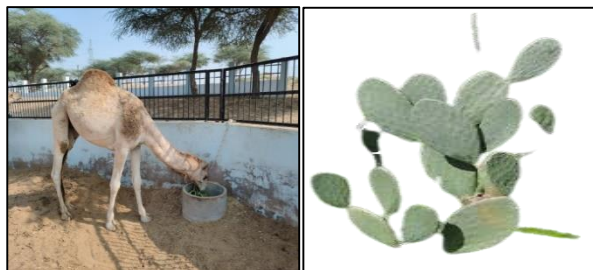
NRCC has been identified as one of the important tourist place of Bikaner and is included in the tourist book. The tourist visiting the Center can see the camel of different breeds and their behavior. A camel museum is available to apprise them of the developmental and research aspects of the camel in the desert ecosystem. Facilities of camel riding, safari and video/photography are available for the visitors. Camel milk parlour is a special attraction because it vendors unique value added camel milk products like ice-cream, hot and cold beverages. Every year thousands of Foreign and Indian Tourists visit the Center.

Disclaimer: The contents of this newsletter are purely informative in nature. Though all efforts have been made to keep the contents of this newsletter up to date, the same should not be construed as a statement of law or used for any legal purpose.

**Announcement: Two days National Workshop on "Immunology and its Application" will be conducted at ICAR-National Research Centre on Camel, Bikaner, Rajasthan from 16-17th Feb. 2023. For further details visit the website [www.nrccamel.icar.gov.in](http://www.nrccamel.icar.gov.in)**

## CAMEL RESEARCH & DEVELOPMENT

### Effect of feeding Cactus (*Opuntia ficus indica*) in fresh form as roughage source in the diet of Camel



Cactus (*Opuntia ficus indica*) pear is a drought tolerant biomass accumulator and this can also be grown as strategic crop for combating desertification (Sahoo et al., 2017). The cactus cladodes are generally fed by chopping into smaller pieces and it provides both DM and water to the ruminant livestock. Utility of cactus as a feed resource was studied in camel, a desert animal to provide a source of alternate forage biomass.

The effect of feeding fresh chopped cactus on palatability/intake, nutrient utilization and rumen fermentation pattern was assessed in three months feeding trial. Twelve male camels of similar age and body weight (430-442 kg) were divided randomly into 3 treatment groups with four animals each. The control (T<sub>1</sub>) diet consisted of groundnut straw and guar straw in 1:1 ratio. In the other two groups, cactus was fed at 10% (T<sub>2</sub>) and 20% (T<sub>3</sub>) on DM basis. A digestibility trial of 6 days duration was conducted at the end of feeding trial for assessing digestibility of nutrients. Rumen liquor was collected on the final day and the data generated were analyzed statistically.

The chemical composition of cactus revealed lower protein content than conventional roughages. There was enhanced DM intake at 10% level of inclusion, which declined at

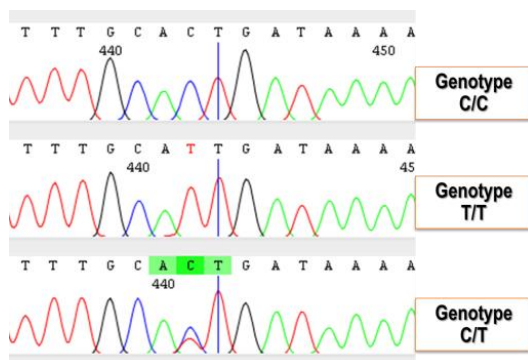
higher levels. This resulted in lower ( $P<0.05$ ) DM and CP intake in T<sub>3</sub>. The water intake declined significantly ( $P<0.05$ ) with an increase of cactus in the diet that conforms to its high moisture content that partially met the daily water requirement of camel. The rumen fermentation pattern was observed to be similar, but total protozoa count declined significantly ( $P<0.05$ ) with the increase in the level of cactus in the diet of camel. The digestibility of nutrients and nutritive values were not affected, but a lower TDN intake per kg metabolic body weight was observed in T<sub>3</sub>. The camels in T<sub>3</sub> also showed lower accumulation of body weight compared to other two groups.

It is concluded that feeding of fresh and chopped cactus cladodes at 10% level could provide both feed DM as well as water to camels in the arid climatic regions without affecting nutrient intake and utilization, while, beyond this level at 20% it reduced feed and nutrient intake.

### Genetic Polymorphism in TL4 gene in Indian Camels

Blood and milk sample was collected from treatment and control groups. Isolation of genomic DNA and PCR amplification of TLR 4 gene coding sequences was done using self-designed camel specific primers. The PCR product was purified and bidirectional sequencing of PCR products was done using forward and reverse primers using sanger Dideoxy chain termination method. The forward and reverse sequences obtained were edited manually to get a consensus sequence using bioedit software and consensus sequence was generated for each fragment. The pairwise and multiple alignments of the

different sequence patterns was done to analyse the differences and relationship between Indian Camels and other livestock species. The obtained sequences were analyzed for presence of single nucleotide polymorphisms (SNPs) in coding regions, 5' UTR and intronic regions. We identified one polymorphic SNP at the position C475T in the intron 1 region of TLR4 gene, however, no SNPs was found in exonic regions. The phylogenetic analysis was also done to know the evolutionary distances between other domestic species by neighbour joining method using MEGA 7.0. The sequence variation and homology analysis of TLR-4 gene coding sequences was performed using bioedit software. The nucleotide sequences were submitted to NCBI repository with accession no: MT492152, MT492153 and MT365024.

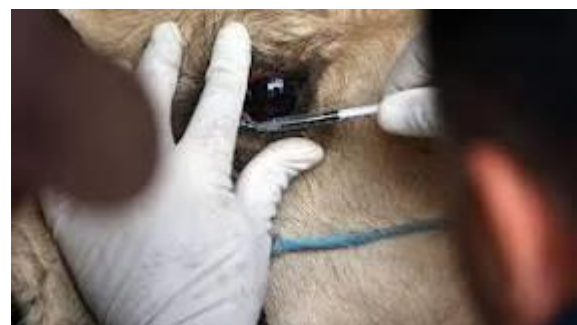


**Fig.:** Sequencing chromatogram of different genotypes at C475T SNP locus identified in TLR4 gene intron1 region.

Identification of genetic variants in 547 bp TLR4 gene fragment of was done in 32 Kachchhi and 19 Bikaneri camels using PCR-sequence based typing (PCR-SBT) method. TLR4 gene was found to be polymorphic in both breeds. The polymorphism study revealed two alleles and three genotypes (CC, TT and CT) in all the studied breeds. The heterozygote genotype - CT were more predominant in the studied loci in Bikaneri as well as Kachchhi camel population. The

studied population was in Hardy-Weinberg equilibrium as the observed and expected frequencies confronted to HWE expectations. The association of genetic variants of TLR4 genotypes with somatic cell counts and mastitis resistance/susceptibility in Indian camel breeds will help in screening animals with disease resistance and susceptibility.

**Camel tear can serve as a better tear replacement fluid**



In a recent study, it was found that the camel tear film pattern is surrounded by thick, peripheral, homogenous layers containing small oily droplets, particles, and tiny branches in the tear ferning. The tear ferning of the camel was grade 0-1, whereas the tear ferning of human tears and Refresh Plus was grade 1-2. The mass percentage of chloride was highest in the camel tears. The mass percentage of potassium in the camel tears was greater than that in the human tears, but it was less than that in the Refresh Plus lubricant. From this study, it was concluded that camel tears exhibit a better quality than human tears and Refresh Plus lubricant do. The presence of oily droplet-like structures at the periphery of tear ferning suggests that camel tear film may have a higher quality and quantity of minerals and lubricants, which may help the animal to avoid eye dryness. Future work is required to investigate the identification of the elements present in the peripheral and central part of the tear ferning.

### Value Added Camel Milk Products Developed for Popularization and Commercialization by ICAR-NRCC, Bikaner

In pursuits of transforming camel into a milch animal and in view of beneficial properties of camel milk for human health, there had been continuous efforts by the Centre in promoting and popularizing camel milk as health drink among general public through development of different value added camel milk products. Following value added camel milk products have been developed by the Centre:

#### CAMEL MILK-MILLET PORRIDGE QUICK COOKING MIX



This is a quick cooking mix which has millets and camel milk powder. This dried product is ready to cook and the porridge is prepared only in 3-5 minute cooking time.

#### CAMEL MILK CHOCOLATE



The camel milk chocolates are prepared using a novel process developed at the centre.

The process involves non-thermal processing for producing camel milk chocolates with higher quality attributes.

#### CAMEL MILK-FLAVOURED BUTTER



Camel-milk flavoured butter is prepared using camel milk and natural garlic extract. The preparation of Camel milk-flavoured butter is done using cream separated from the pasteurized whole milk.



#### CAMEL MILK GHEE

The preparation of camel milk ghee is done using cream separated from the pasteurized whole milk. In this invention, culture is used to improve the flavour of final product. The culture selected results in higher oxidative stability of final product (lower FFA values).

## **Gene Interplay and Genome-Editing Approach to Elucidate Antidiabetic Effects of Camel Milk**

Comparative genomic analysis reveals complex features related to desert adaptations, including fat and water metabolism, stress responses to heat, aridity, intense ultraviolet radiation and choking dust. Further transcriptomic analysis reveals unique osmoregulation, osmoprotection and compensatory mechanisms for water reservation underpinned by high blood glucose levels. Studies so far have demonstrated the favourable effects of camel milk on diabetes mellitus by reducing blood sugar, decreasing insulin resistance and improving lipid profiles. Around 2730 significantly faster evolving genes have been identified that are enriched in metabolic pathways such as carbohydrate and lipid metabolism, insulin signaling pathways and adipocytokine signaling pathways. It is hypothesized that these genes might have helped the camel to optimize their energy storage and production in the desert and some of the rapidly evolving genes like CYP2E and CYP2J could be involved in type II diabetes mellitus. Two critical genes in the insulin signalling pathways – PI3K and AKT – have undergone rapid divergence in camels which could have changed their response to insulin. This finding is in line with the observation that camel has high blood glucose level (6–8 mmol/l) due to their strong insulin resistance.

Another concept is camel hemoglobin exhibits low glycation and exhibits higher electrophoretic mobility than hemoglobin from cattle or humans. There is a direct relationship between glycated hemoglobin A1C (HbA1C) and blood glucose level in human and most other animals to monitor diabetes. An in-silico analysis on hemoglobin characteristics revealed that its beta chain (HBB) is resistant to N- and O-linked glycosylation especially in camels whereas, hemoglobin alpha chain (HBA) is susceptible to O-linked glycosylation. These factors, together with other post-translational modification, might be responsible for the

protection of Hb from glycosylation in camel and thus a detail study of how camels respond to insulin may help to unravel how insulin regulation and diabetes work in humans. Further, the role of critical regulatory pathways can be elucidated through genome editing using CRISPER-Cas technique. It will also help to develop strategy for stress management in livestock during period of feed and fodder scarcity and starvation.

## **Camel & Environment: A friend or Foe?**

Global climate changes that are characterized by a continuous increase in desertification, high temperatures, changing and uncertain climatic events, it is important to rethink and consider the dromedary camel as one of the most adapted and sustainable animals that can be used to overcome such challenging environmental conditions. Quite a few recent reports have highlighted survival and sustenance of dromedary camel in the desert environment and therefore promises one of the best livestock sources for future agriculture and for the animal production sector. It is also to mention that camel produces less than half of enteric methane compared to other ruminant livestock and may thus be considered as the ‘Greener Livestock’ species. Pastoralists and camel, they live interdependently and develop a social and environmental bondage that adds to important contribution of camel to mother earth in providing food and water and sustaining soil fertility, forest and pasture land. The browsing habit of camel and its height helps in natural pruning of tree and browse species in the forest and the defecated seeds aids in natural germination to enrich the forest and pasture as well as in the village common property resources (CPR). The role of camel milk as therapeutic and nutraceutical adjuvant against many human ailments (e.g. diabetes, autism, tuberculosis, gut anomalies etc) adds to its role as ‘Friend’ and not ‘Foe’ for the human habitation, environment and greener globe.

## EVENTS AT NRCC

Special Campaign 2.0 – “Swachhta Abhiyan” from 02-10-2022 to 31-10-2022 at NRCC



Animal health camp and Farmer-Scientist Interaction program on 6 October 2022 under SCSP in Kharia Patawatan village of Kolayat



Animal health camp & Farmer-Scientist Interaction Meet under TSP at Ishra village (8-10-2022) & Mordu village (9-10-2022) of Abu Rod, Sirohi



Broadcasting of the Agri-Startup Conclave & Kisan Sammellan organized by the Ministry of Agriculture and Farmers Welfare on 17 October 2022



Meeting of Institute Management Committee (IMC) of ICAR-NRCC, Bikaner on 17 October 2022



A team from Patanjali Yogpeeth Haridwar visited NRCC on 22-10-2022



Sh. Alok Kumar (IPS) CISF Inspector General, North Sector (New Delhi) Visited NRCC Bikaner on 26-10-2022



A Press conference on the occasion of Special Campaign 2.0 – “Swachhta Abhiyan” (02 to 31 October 2022) on 31-10-2022



Vigilance Awareness Week (31-10-2022 to 06-11-2022) at ICAR NRCC Bikaner



Broadcasting of a virtual presentation by Secretary, DARE & DG ICAR on Revitalizing ICAR: "Aspirations and Action Plans" on 11 November 2022



Exposure visit of a Group of 70 Children of Air Defense Missile Regiment unit on 11-11-2022 and a Group of Students and teachers from Santa Kidz School, Pawanpuri Bikaner on 14-11-2022



NRCC hosted ICAR West Zone Sports Tournament from 22 to 25 November 2022 at Bikaner



MOU Signed between NRCC, Bikaner and IISc, Bengaluru on 7 December 2022 for collaborative research & development and exchange of knowledge



'Shram Suvidha Portal' and 'Samadhan Portal' awareness workshop was organized 08.12.2022



Exhibition of technology and products developed by NRCC AT Amrita Haat Mela (07 to 13 December 2022) at Garmin Haat, Bikaner



Stakeholders Meet on "Improvement of Donkey and Non-Bovine Milk" organized at NRCC on 13-12-2022 in collaboration with International Livestock Research Institute (ILRI), New Delhi





ICAR-NRCC celebrated Farmer's Day on 23 December 2022 and broadcast the address of Shri Narendra Singh Tomar, hon'ble Union Minister of Agriculture & Farmers Welfare



Quiz competition at NRCC with the participation of students from Rao Tularam Rashtra Unnati Senior Secondary School No.3, Bikaner on 26 Dec. 2022



Press conference & display of camel's wool products on 30 December 2022 on the occasion of Swachh Bharat Pakhwada (16 - 31 Dec 2022)



**एनआरसीसी एवं आईआईएससी के मध्य अनुसंधान एवं विकास कार्य को लेकर एमओयू**

कैम्पेनेर, (मिस)। राष्ट्रीय उद्यम अनुसंधान केंद्र, बीकानेर एवं आईआईएससी (भारतीय विज्ञान संस्थान) के मध्य एमओयू का तलब के तहत एक एमओयू किया गया है। इस एमओयू पर एन.एस.सी. की ओर से डॉ. आर्तबन्धु साहू, निदेशक एवं भारतीय विज्ञान संस्थान की ओर से के.एन. श्रीधर शर्मा, रजिस्ट्रार ने हस्ताक्षर किए। आज आईआईएससी के मुख्य भवन में हुए इस एमओयू के संकेत में जानकारी देते हुए डॉ. आर्तबन्धु साहू ने कहा कि इस एमओयू के तहत एनआरसीसी और आईआईएससी के बीच अनुसंधान एवं विकास को दिशा में मिश्रण कार्य कर सकते हैं। डॉ. साहू ने अशा तर्कों कि इस कार्य के तहत सूर्यकिरण एवं तापीकरण (फोटोथर्मल) ऐरोथेक विमान बनाने को दिशा में अनुसंधान कार्य के प्रकारों का परिणाम मिलने से हम एक कम लागत वाले बेहतर एंटी-कैंक विमान जो परंपरागत एंटी-कैंक विमान की तुलना में ज्यादा प्रभावी व सुरक्षित होगा, का विकास किया जा सकता है। एंटी-कैंक विमान उपस्थिति में अल्ट्रा-वायोलैट विकिरण के साथ कई अन्य अक्षयिकी व अक्षयिकी देश भी शामिल हैं। डॉ. साहू ने जोर देते हुए कहा कि उद्यम के अनुसंधान कार्य से महत्वपूर्ण बदलाव लाया जा सकता है तथा यह समय को बेहतर मांग भी है साथ ही इससे बायोमैटेरियल अनुसंधान में उठती की उपस्थिति को बढ़ावा मिलेगा।

**एनआरसीसी ने लगाया इशरा गांव में पशु शिविर**



बीकानेर (मिस)। राष्ट्रीय उद्यम अनुसंधान केंद्र द्वारा आबू रोड (सिरोंही) के इशरा गांव में जन जातीय उपयोगिता तहत पशु स्वास्थ्य शिविर एवं कृषक-वैज्ञानिक संवाद कार्यक्रम का आयोजन किया गया। कैम्प में 83 पशुपालकों द्वारा लाए गए 408 ऊँटों सहित कुल (गाय 70, भैंस 189, बकरी 70) 737 पशुओं को उपचार, दवाइयाँ व उचित सलाह देकर लाभान्वित किया गया। केंद्र के प्रधान वैज्ञानिक डॉ. सुमुन्त व्यास ने संवाद कार्यक्रम में कहा कि देश की आबादी, उपलब्ध संसाधनों एवं पोषण जरूरतों की दृष्टि से खेती, पशुपालन इत्यादि संसाधनों में समन्वय साधते हुए इन्हें आवश्यकता अनुरूप तैयार करना होगा। इसके लिए पशुपालकों/किसानों में जागरूकता के साथ-2 उन्हें वैज्ञानिक ज्ञान की ओर भी रुख करना चाहिए ताकि वे देश की मुख्यधारा से जुड़ सकें। डॉ. व्यास ने केंद्र निदेशक डॉ. आर्तबन्धु साहू के नेतृत्व में एनआरसीसी द्वारा उद्यम विकास एवं संरक्षण के तहत बहुआयामी अनुसंधान कार्यो खासकर ऊँटनी के दूध से जुड़ी गतिविधियों पर प्रकाश डालते हुए क्षेत्र के पशुपालकों को अधिकाधिक उद्यम दुग्ध व्यवसाय हेतु भी प्रेरित किया ।

**सामाजिक सरोकार**

**एनआरसीसी ने मोरडू गांव में लगाया पशु स्वास्थ्य शिविर**

बीकानेर। भाकअनुप-राष्ट्रीय उद्यम अनुसंधान केंद्र द्वारा आज दिनांक को आबू रोड (सिरोंही) के मोरडू गांव में जन जातीय उपयोगिता तहत पशु स्वास्थ्य शिविर एवं कृषक-वैज्ञानिक संवाद कार्यक्रम का आयोजन किया गया। कैम्प में 176 पशुपालकों द्वारा लाए गए कुल 606 पशुओं (गाय 167, भैंस 258, बकरी 181) का उपचार, दवाइयाँ व उचित सलाह देकर लाभान्वित किया गया। शिविर के दौरान एनआरसीसी के वैज्ञानिकों ने यहां के जन जातीय क्षेत्र में पशुधन, इनके प्रबंधन तथा व्यवसाय संबंधी समस्याओं पर विशेष चर्चा की जिसमें पशुपालकों ने अपनी समस्याओं व जिज्ञासाओं को साफने रखा जिसका विषय-विशेषज्ञों द्वारा उचित निराकरण किया गया।

चाहिए। पशु का उचित प्रबंधन, स्वास्थ्य की जांच तथा आवश्यक टीकाकरण से पशु को सुरक्षा प्रदान की जा सकती है।

संवाद कार्यक्रम में केंद्र के डॉ. सुमुन्त व्यास, प्रधान वैज्ञानिक ने कहा कि कई बार पशुओं के रखरखाव का नलीभांति ज्ञान नहीं होने पर उसके स्वास्थ्य एवं उत्पादन पर वितरित असर पड़ता है तथा पशु स्वामी को आर्थिक नुकसान भी उठाना पड़ता है, अतः जागरूकता हेतु सरकारी स्तर पर आयोजित किए जाने वाले ऐसे अवसरों का भरपूर लाभ लेना चाहिए। डॉ. राकेश रंजन, प्रधान वैज्ञानिक ने कहा कि बदलते परिवेश में पशुपालकों को अपने पशुधन को लेकर सजगता बरतनी होगी तथा अपने ज्ञान में भी अभिवृद्धि कर मनचाहा उत्पादन लेना चाहिए। पशु का उचित प्रबंधन, स्वास्थ्य की जांच तथा आवश्यक टीकाकरण से पशु को सुरक्षा प्रदान की जा सकती है।



केंद्र निदेशक डॉ. आर्तबन्धु साहू ने एनआरसीसी टीम द्वारा आबू रोड (सिरोंही) में जनजातीय गतिविधियों के सफल आयोजन हेतु केंद्र के विषय-विशेषज्ञों, पशुपालन विभाग अधिकारियों को अपनी ओर से बधाई संभ्रमित की तथा भारत सरकार की जन जातीय उप-योजना के प्रचार-प्रसार पर बल दिया ताकि पशुपालकों को इसका पूर्ण लाभ मिल सके। डॉ. शान्तनु रक्षित, वैज्ञानिक ने तथा डॉ. काशी नाथ, पशु चिकित्सा अधिकारी ने पशुपालकों को मेडिसिन किट में अंतः व बाह्य परजीवियों हेतु दवा वितरित की गई। पशुपालकों को केंद्र में निमित्त संतुलित पशु आहार व खनिज मिश्रण का भी वितरण किया गया। कैम्प आयोजन में श्री सेवाराज, सदस्य, पशुधन विकास कमेटी, सिरोंही तथा केंद्र के श्री मनजीत सिंह ने सहयोग प्रदान किया गया।

**भारत में बहुत तेजी से कम हो रहे गधे!**

**बीकानेर में गर्दभ संवर्धन व गैर-गोवर्धनीय पशु दूध के महत्व पर गहन विचार-विमर्श**

इस कार्यक्रम के अध्यक्ष के. आर्तबन्धु साहू ने कहा कि उद्यम अनुसंधान केंद्र द्वारा एनआरसीसी के निदेशक डॉ. आर्तबन्धु साहू के अध्यक्षता में आयोजित एक कार्यशाला का आयोजन किया गया। इस कार्यक्रम में 100 से अधिक वैज्ञानिक, प्रशासकों के लिए सत्रों का आयोजन किया गया। इस सत्र में डॉ. आर्तबन्धु साहू ने कहा कि उद्यम अनुसंधान केंद्र के अध्यक्षों को इन सत्रों में भागीदार बनना होगा। डॉ. आर्तबन्धु साहू ने कहा कि उद्यम अनुसंधान केंद्र के अध्यक्षों को इन सत्रों में भागीदार बनना होगा।

## खारिया पतावतान में पशु शिविर व कृषक-वैज्ञानिक संवाद



बोकानेर (मिस्र)। राष्ट्रीय उष्ट्र अनुसन्धान केन्द्र (एन.आर.सी.सी.) द्वारा अनुसूचित जाति उपयोगिता (एससीएसपी) के तहत कोलायत के खारिया पतावतान गांव में पशु स्वास्थ्य शिविर एवं कृषक-वैज्ञानिक संवाद कार्यक्रम का आयोजन किया गया जिसमें खारिया पतावतान एवं आसपास क्षेत्र के करीब 100 पशुपालक सम्मिलित हुए। शिविर में 300 ऊँटों सहित लाए गए कुल 1442 पशुओं (जिनमें गाय, भेड़ व बकरी) को दवाइयां, उपचार एवं उचित समाधान देकर लाभान्वित किया गया। केन्द्र के निदेशक डॉ. आर्तबन्धु साहू ने संवाद कार्यक्रम में शामिल हुए पशुपालकों से उनके पशु व्यवसाय संबंधी पहलुओं पर खुलकर बातचीत की तथा कहा कि भारत सरकार की अनुसूचित जाति के कल्याणार्थ इस उप-योजना का उद्देश्य ढांचगत विकास के तहत गरीब-जरूरतमंदों को विभिन्न स्वरूपों में संबल प्रदान करना है। डॉ. साहू ने पशुपालकों को पशुओं से अधिक उत्पादन प्राप्ति के लिए जागरूकता के साथ अपने व्यवसाय से जुड़ी उपयोगी जानकारी रखने हेतु विशेष रूप से प्रोत्साहित किया। उन्होंने क्षेत्र के ऊँटों के रखरखाव, उनके आहार-चारे, पोषण तथा उससे होने वाली आमदनी के बारे में भी ऊँट पालकों से चर्चा की साथ ही ऊँटों के वैज्ञानिक तरीके से प्रबंधन एवं उष्ट्र उद्योगिता संबंधी संभावनाओं की जानकारी लेने हेतु एन.आर.सी.सी. में भ्रमण/प्रशिक्षण हेतु भी प्रोत्साहित किया। केन्द्र की एससीएसपी उप-योजना के नोडल अधिकारी डॉ. आर.के.सावल, प्रधान वैज्ञानिक ने बताया कि आयोजित पशु शिविर में पशुपालकों की अपने पशुओं सहित उत्साही सहभागिता रही साथ ही उन्होंने संवाद कार्यक्रम में वैज्ञानिकों को खुलकर अपनी समस्याएं बताईं। इस दौरान पशुपालकों को पशुओं के लिए आहार चारे की पौष्टिकता संबंधी जानकारी संप्रेषित की गई साथ ही केन्द्र में निर्मित पशुओं के खनिज मिश्रण का भी वितरण किया गया।

## पतंजलि पीठ हरिद्वार के दल ने ऊंटनी के दूध की जानकारी ली

बीकानेर, (कासं)। भाकृअनुप-राष्ट्रीय उष्ट्र अनुसन्धान केन्द्र में आज पतंजलि योगपीठ हरिद्वार के एक दल द्वारा भ्रमण किया गया। इस दल में पतंजलि सन्यास प्रकल्प के बंगाल, उड़ीसा, बिहार, मद्रास के 95 सन्यासी, आचार्य व ब्रह्मचारी सम्मिलित थे जिन्होंने एनआरसीसी के अनुसन्धान कार्यों की विस्तृत जानकारी दी गई।



उष्ट्र संबद्ध गतिविधियों यथा- उष्ट्र डेयरी, कैमल मिल्क पॉल्टर, उष्ट्र बाढ़ों तथा उष्ट्र पर्यटनीय सुविधाओं में उष्ट्र संग्रहालय, उष्ट्र सफारी आदि प्रमुख स्थलों का भ्रमण कराते हुए इनकी व्यावहारिक जानकारी दी गई। इस अवसर पर केन्द्र निदेशक डॉ. आर्तबन्धु साहू ने उष्ट्र प्रजाति की बहुआयामी उपयोगिता पर अपनी बात रखते हुए कहा कि केन्द्र में अनुसन्धान द्वारा ऊंटनी का दूध कई रोगों तथा मधुमेह क्षय रोग व आर्टिज्म के प्रबंधन में कारगर पाया गया है।

पतंजलि योगपीठ हरिद्वार के एक दल ने एनआरसीसी का भ्रमण कर ऊंटनी के दूध के प्रसंस्करण की जानकारी ली।

यह दूध एलर्जी नहीं करता एवं इसमें महत्वपूर्ण रोग प्रतिरोधकता क्षमता को देखते हुए इस पशु को औषधि का भण्डार कहा जा सकता है। उन्होंने

केन्द्र द्वारा ऊंटनी के दूध से विकसित विभिन्न स्वादिष्ट मूल्य सर्वाधिक उत्पादी की जानकारी दी।

पतंजलि दल ने ऊंटनी के दूध के औषधीय गुणों को इसके प्रसंस्करण रखरखाव ऊंटों की बदलते परिवेश में उपयोगिता आदि पहलुओं पर अपनी जिज्ञासाएं रखी जिनका वैज्ञानिकों द्वारा उचित निराकरण किया गया। केन्द्र के डॉ. आरके.रंजन प्रधान वैज्ञानिक द्वारा दल के भ्रमण के दौरान व्यावहारिक जानकारी दी गई। पतंजलि के दल प्रतिनिधि स्वामी डॉ. परमार्थ देव, अरविन्द पांडेय राजस्थान पूर्व प्रमुख, राजस्थान परिचय प्रमुख विनोद पारीक, राज्य प्रमुख पृथ्वी युवा भारत के संदीप कासिनिया आदि ने ऊंट का प्रबंधन एवं इस व्यवसाय को लाभदायक बताया।

GOOD NEWS FOR DIABETICS

## Camel milk chocolates to be available soon

MANISH GODHA  
Shree

Here comes sweet news for diabetics, who will soon be able to enjoy cost-effective chocolates made from camel milk. The National Research Centre on Camel at Bikaner (Rajasthan) is working on this and recently got a trademark KAM KET for this chocolate.

Studies tell that camel milk may lower blood sugar and improve insulin sensitivity, especially in people with type 1 and type 2 diabetes. It is a natural source of calcium and potassium.



well. But making chocolate from this was a challenge for the scientists of the centre as in the heating process, the medicinal values of camel milk go down and chocolates are mostly made by the heating process. Centre director Artabandhu Sahoo said, "People use camel milk to get the maximum benefit of its medicinal values and to maintain these values, we are working on a cold process to make the chocolate, though it is time-consuming and not easy."

The camel milk chocolate will cost around ₹40-50 more than the normal chocolate. "We think one can afford it looking at the medicinal and nutritional properties of our product," added Mr. Sahoo.

He added the aim is to reach the maximum number of people as camel milk has great medicinal and nutritional values and the centre found chocolate is the best way for this as it can be transported and preserved easily. "It will take some time to complete our tests but we are hoping for a commercial launch of KAM KET within six months," he said. The centre has also made sweets like *gulab jamun*, *barfi*, *peas* and *Ashur* with camel milk. Biscuits with camel milk and *honey flour* are also being made at the centre. Mr. Sahoo said there is no commercial production of the products but anyone interested can visit the centre and obtain knowledge of the technique used.

FREE PRESS JOURNAL Thu, 20 October 2022 <https://paper.freepressjournal.in/c/78596784>

# अंतर्राष्ट्रीय ऊँट महोत्सव / International Camel Festival



## प्रतियोगिता कार्यक्रम / Competition Programme

ऊँट नृत्य / Camel Dance

ऊँट ऊन कल्पन / Camel Fur Cutting

ऊँट-सजावट / Camel Decoration

ऊँट दौड़ / Camel Race



दिनांक : 14 जनवरी, 2023

समय : सुबह 10:00 - दोपहर 3:00

स्थान : उष्ट्र खेल परिसर / Venue: Camel Sports Complex

भाकृअनुप-राष्ट्रीय उष्ट्र अनुसन्धान केन्द्र

ICAR-National Research Centre on Camel





**ICAR-National Research Centre on Camel Bikaner 334001 (Rajasthan)**

Website: [www.nrccamel.icar.gov.in](http://www.nrccamel.icar.gov.in)

Contact: Tel. 0151 2230183; Kisan Call Centre: 0151 2970153; email; email: [nrccamel@nic.in](mailto:nrccamel@nic.in)

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