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A database of goat milk proteins and peptides

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Researchers have identified the biological activities of more than 2,000 proteins and peptides in milk samples collected from various tropical goat breeds¹. These milk proteins and peptides could potentially be used for multiple human health benefits.

The results, the researchers say, also contribute to the goat-milk protein and peptide database, which is very limited.

There are no comprehensive studies on the variation of milk proteins in tropical goat breeds. India, too, lacks such data.

To generate a database of goat-milk proteins, scientists from India's ICAR-Central Institute for Research on Goats in Uttar Pradesh and the ICAR-National Dairy Research Institute in Haryana analysed 1,450 milk samples from 15 goat breeds found in arid, semi-arid, humid, coastal and Himalayan regions.

The researchers, led by Pramod K. Rout, found that the percentage of protein is significantly higher in goats bred in Odisha, Himachal Pradesh and Himalayan regions, compared with other breeds. The goats from the Himalayas and Odisha also have higher percentages of fat in their milk.

They identified 1,307 proteins that are associated with 144 pathways in metabolism, genetic information processing, environmental information processing and cellular processes. These proteins are also involved in

signalling pathways, including ones related to the immune and nervous systems.

They also detected 1,051 peptides with biological activities such as mineral-binding, antioxidant, antihypertensive, anti-microbial and anti-inflammatory.

References

1. Verma, M. *et al.* Functional milk proteome analysis of genetically diverse goats from different agro-climatic regions. *J. Proteomics*. 227, 103916 (2020) doi: [10.1016/j.jprot.2020.103916](https://doi.org/10.1016/j.jprot.2020.103916)