



VECHUR COW: A BLESSING TO THE VETERINARY DOMAIN – A REVIEW

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ABSTRACT

India is home to the world's largest population of cattle, and among the indigenous breeds in Kerala, Vechur (*Bos indicus*) stands out. Recognized for its medicinal value, the *Bos indicus* Vechur breed cow is classified as critically maintained by the Food and Agriculture Organization. Remarkably, it holds the distinction of being the smallest cow globally, standing at approximately 90 cm in height, while producing a comparatively high volume of milk compared to other breeds. Notably, the Vechur cow has low feed requirements and displays heightened resistance to diseases. The milk produced by Vechur cows is particularly noteworthy, characterized by a high proportion of small fat globules and saturated fatty acids. This unique composition renders the milk suitable for infants and individuals who are unwell. Renowned in the Ayurveda system of medicine, the milk is considered to possess medicinal properties. Despite these observed characteristics, the authenticity of traditional notions surrounding the Vechur cow, such as disease resistance and the medicinal properties of its milk, remains unproven with solid evidence. Designated as a critically maintained breed by the FAO, the Vechur cow is distinct within the *Bos indicus* category due to its exceptionally small size, minimal fodder requirements, adaptability, ease of domestication, and the traditional medicinal attributes of its milk. However, it is essential to note that many traditional beliefs associated with the Vechur cow, including disease resistance and the medicinal nature of its milk, are based on field observations and lack robust scientific evidence. Consequently, the place of the Vechur cow in the livestock industry remains a subject of scrutiny and uncertainty. To further delve into the exploration of Vechur cows, an article has been crafted with the aim of enhancing our understanding and knowledge about these unique bovine creatures. The intention is to rephrase and expand upon existing information to offer a more comprehensive and insightful perspective on the subject.

KEYWORDS : Vechur , Cow, Ayurveda, Veterinary**INTRODUCTION**

The Vechur Cow, a distinctive *Bos indicus* breed originating from the village Vechoor in Kerala, India, holds a unique status due to its rarity and historical significance. Despite initially being prevalent in regions such as Alappuzha, Kottayam, Pathanamthitta, and Kasargode districts, it is now primarily concentrated in the latter regions. Recognized for their black, brown, or red coat colors, Vechur cows are renowned for their exceptional milk quality. Adapted to the hot and humid climate of Kerala, they emerge as significant milk producers, particularly among dwarf breeds.

Measuring an average length of 124 cm and standing at a height of 87 cm, the Vechur Cow has earned its place in the Guinness Book of Records as the world's smallest cattle breed. This distinction is not merely a matter of size but is underscored by their remarkable milk production efficiency relative to their food intake. Historically popular in Kerala until the 1960s, the Vechur cow faced endangerment due to crossbreeding with exotic varieties. Its critical status is emphasized by its inclusion in the FAO's World Watch List of Domestic Animal Diversity in the 'Critical-Maintained Breeds List' in 2000, indicating the looming threat of extinction with dwindling breeding numbers.

MATERIALS AND METHODS

The compilation of this review article involved sourcing information from diverse outlets, including academic journals, newspapers, and contemporary publications. The methodology employed in crafting this review encompassed the meticulous extraction and synthesis of relevant data from a range of reputable sources, forming the foundation for the comprehensive analysis presented herein.

Observation**Table no 1:- Benefits of Vechur Cow Products**

Vechur cow products	Benefits
1)Vechur cow's milk	* It exhibits enhanced antimicrobial properties, particularly through the lactoferrin protein. * The antibacterial efficacy of lactoferrin in Vechur cows surpasses that of the antibiotic ampicillin. * Its medicinal value, plays a crucial role in the development of brain and nerve tissue and aiding in fat absorption.

2)Vechur Ghee	* It is celebrated for its medicinal values attributed to the A2 beta-lactalbumin protein and elevated arginine content. * It provides nutrition and hormonal balance to enhancing digestion. * It has its ability to lower bad cholesterol (LDL) while simultaneously increasing good cholesterol (HDL) levels.
3) Vechur cow's urine	* It is believed to contribute to immunomodulation in immunodeficiency diseases and alleviate the side effects of cancer or chemotherapy

DISCUSSION

Beyond their physical uniqueness, the Vechur cow's milk is esteemed for its medicinal properties, a fact embedded in Ayurvedic traditions and validated by recent scientific studies. Notably, the protein component of Vechur cow's milk exhibits enhanced antimicrobial properties, particularly through the lactoferrin protein. Recent research indicates that the antibacterial efficacy of lactoferrin in Vechur Cow milk surpasses that of the antibiotic ampicillin. While lactoferrin is inherent in the milk of all mammals, the Vechur cow's milk stands out with heightened antimicrobial, antiviral, antitumor, immunodefensive, and anti-inflammatory attributes.

The therapeutic potential extends to Vechur Ghee, a clarified butter derived from their milk, celebrated for its medicinal values attributed to the A2 beta-lactalbumin protein and elevated arginine content. This composition is deemed beneficial for the health of convalescent individuals. Additionally, Vechur cow urine, a traditional remedy in Ayurveda, is believed to contribute to immunomodulation in immunodeficiency diseases and alleviate the side effects of cancer or chemotherapy, although scientific analyses or animal studies are yet to be conducted.

Recent reports highlighting the nutritional benefits of arginine supplementation for wound healing and cardiovascular diseases underscore the vast potential for further therapeutic investigations into the elevated arginine levels within the lactoferrin protein of Vechur cow milk. Thus, the Vechur Cow, beyond its diminutive stature, emerges as a reservoir of unique genetic and medicinal attributes, warranting concerted efforts for its preservation and further exploration of its therapeutic potential

The findings from a study published in the International Journal of

Functional and Evolutionary Genomics (GENE) have shed light on the extraordinary properties of lactoferrin in Vechur cow milk. Notably, the antibacterial efficacy of lactoferrin in Vechur cows surpasses that of the antibiotic ampicillin. Lactoferrins, in general, are recognized for their multifaceted attributes, including antibacterial, antiviral, antitumor, anti-inflammatory, and immune defense properties. The lactoferrins present in Vechur cow milk exhibit an enhanced profile of these factors, attributed to additional amino acid substitutions, making them stand out in terms of therapeutic potential.

Another vital aspect is the beta-casein A2 content in the milk of Vechur cows. Recent studies indicate a higher presence of beta-casein A2 in Vechur cow milk compared to other milk-yielding breeds like Jersey, Brown Swiss, and Holstein-Friesian. The distinction between beta-casein A1 and A2 is crucial when assessing milk quality, as A1 is linked to triggering diseases such as diabetes and sudden infant death syndrome (SIDS), while A2 is considered beneficial for health. Beta-casein A1 is also associated with digestive and inflammatory issues in the gastrointestinal system, whereas the A2 variant poses no problems for both lactose-tolerant and intolerant individuals. Additionally, A1 varieties tend to cause an imbalance in calcium content, leading to magnesium deficiency, whereas the A2 variant does not pose such issues.

The unique milk composition of Vechur cows extends beyond proteins to include variations in the size of fat globules and saturated fatty acids, making it of significant medicinal importance. Vechur cows produce milk with higher percentages of fat and Solid Non-Fat (SNF) content compared to other breeds. The remarkable feature of smaller fat globules in Vechur cow milk contributes to a larger phospholipid content due to their increased surface area. This heightened phospholipid content bears medicinal value, playing a crucial role in the development of brain and nerve tissue and aiding in fat absorption. The medicinal properties are not limited to milk alone; Vechur cow ghee, derived from their milk, holds substantial market value. The health benefits associated with Vechur cow ghee range from providing nutrition and hormonal balance to enhancing digestion. Moreover, it is recognized for its ability to lower bad cholesterol (LDL) while simultaneously increasing good cholesterol (HDL) levels. The lubricating effect on the intestines makes digestion smoother, and Vechur ghee is even fed to children to enhance their memory power, given the association of phospholipids with brain and nerve tissue development.

CONCLUSION

Despite these remarkable attributes, the indigenous *Bos indicus* breed, Vechur, is teetering on the brink of extinction, necessitating urgent attention for its conservation. Unfortunately, the lack of comprehensive scientific studies to underscore the therapeutic potential and unique medicinal properties of Vechur cow milk has hindered its widespread acceptance among farmers, posing a threat to its survival. Many traditional beliefs surrounding Vechur cows, such as disease resistance and the medicinal properties of their milk, remain grounded in field observations without concrete scientific evidence. As a result, the existence of Vechur cows in the livestock industry remains a subject of uncertainty, warranting concerted efforts for their preservation and further scientific exploration.

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