

Abstract

Structural Diversity of Oligosaccharides Isolated from Milk of Various Cow Breeds [†]

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Cow milk oligosaccharides (CMOs) have garnered significant attention due to their association with enhanced infant immune system development, defence against pathogens, and anti-inflammatory properties. Understanding their structural variations is crucial for unlocking their diverse biological functions. This paper explores the structural diversity of CMOs isolated from different cow breeds and their potential health implications. Recent research has elucidated various CMO structures, revealing a rich landscape of oligosaccharides with unique arrangements and potential bioactivities. Compounds such as Aurose, Tarose, Orose, and Tosose, identified in cow colostrum from the Jarsi breed, provide insights into early milk production. Similarly, discoveries like Arose, Urose, Ausose, and Tausose in black cow milk highlight the diversity within specific cow varieties. Further investigations into oligosaccharides from Lal Muha cow milk, including Rusose, Urose, Taurose, and Uruose, and from Chauri cow milk, such as Bosose, Unninoose, Nakose, and Nienose, underscore the complex interplay between cow genetics and milk composition. Findings from black cow milk, including Indicose, Indose, Indinose, Bosnose, and Dicusose, emphasise the potential bioactivity of oligosaccharides. Recent work on Tharparkar Cow milk oligosaccharides like Tharoside, Parkoside, Karoside, and Arkaroside showcases ongoing efforts to explore carbohydrate complexity across different cow breeds. These discoveries open avenues for further research into the structural variations of CMOs and how they affect human health.

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