17. Comparison of fatty acid profiles of camel milk powder from camels reared in Isiolo and Laikipia county in Kenya to Irish cow's milk powder

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Subtheme: Agriculture - Sustainable Agro-ecological practices for climate resilience

Abstract

The one humped camel (Camelus dromedarius) has ensured food security and nutrition for pastoralists in Kenya for generations. Extensive research has highlighted the dynamic nature of milk, by showing that the fatty acid and macronutrient composition is variable and impacted by several factors, including diet, availability of water and lactation cycle of the animal. This study compared the fatty acid profiles of milk powder from camels reared in Isiolo and Laikipia counties in Kenya to that of Irish Friesian cows. Results show significant variability in nutritional quality both intra- and interspecifically, with distinct differences observed in fatty acid composition, particularly in omega-3 to omega-6 ratios, chain length and unsaturation levels. Camel milk powders contained higher levels of mono unsaturated fatty acids (MUFAs) and polyunsaturated fatty acids (PUFAs) than the cow milk samples. The PUFA:SFA ratio of camel milk was observed to be higher than that of cow milk. A notable difference is absence of short chain fatty acid; butryric acid (C4) in camel milk powder compared to contributing to 30% in cow's milk short chain fatty acids (SCFAs). Additionally, inconsistencies in saturation were evident within the camel populations. Significant disparities in macronutrient composition were observed across different Kenyan counties, with camel milk from the dry Isiolo region exhibiting higher carbohydrate content and lower ash content compared to milk from the more fertile Laikipia region.

Keywords: *Camel milk, Fatty acid, Protein, Carbohydrate, Ash, Moisture, Fat*