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MILK PROTEIN COMPOSITION IN DIFFERENT LACTATION STAGES OF DAIRY CATTLE GRAZING ON SALTMARSH PASTURES IN MANNAR, SRI LANKA

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Cow milk is a nutrient-rich dairy product which has high demand worldwide. Improving local dairy production is essential to overcome malnutrition in the Sri Lankan population hit by the current food crisis. Cow milk is a vital source of high-quality proteins consisting of all nine essential amino acids required for humans. Considering the solubility factor, milk proteins belong to two main fractions that are casein (approximately 80% of total protein content) and whey protein (about 20% of total protein content). The composition of raw cow milk depends upon the stage of lactation, the feeding source, the cow's health and genetic factors. The study aimed to investigate the differences in total milk protein composition of cow milk within the lactation curve of cattle grazing on two types of pastures in Sri Lanka. The samples were collected during early, mid and late lactation stages from two cattle groups grazing on saltmarsh pastures in Mannar and dry pastures in Medawachchiya. The milk samples were tested for total protein composition (%w/w) by the ultrasonic Lactoscan MCC milk analyzer. Considering the results, the total milk protein composition of saltmarsh pasture feeding cattle was significantly higher ($p<0.05$) during the mid (3.48%) and late (3.54%) lactation stages than the dry pasture-feeding cattle. During the early lactation stage, the mean total protein composition (n=30, 3.38 %) of saltmarsh pasture feeding cattle was high compared to the mean total protein composition (n=25, 3.28%) of dry pasture feeding cattle, though statistically not significant ($p>0.05$). Since the milk protein yield is relatively proportional to the energy content of the diet in dairy cattle, this indicates that the saltmarsh pasture-based diet gives high energy to cattle. This study concludes that the protein composition of raw cow milk depends on the feeding pasture and the stage of the lactation period of dairy cattle.

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