

**Title :** Analysis of Chemical Composition of Raw Cow's Milk Produced by Maejo Dairy Cooperative Ltd. in the Year of 2024

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## ABSTRACT

Thailand is one of the countries with widespread dairy farming, especially the northern region, Chiang Mai, where dairy farming has been increasing every year. Seasonal changes in Thailand and external factors such as temperature and rainfall could however influence the chemical composition and quality of raw milk, such as fat, protein, and lactose contents. These components also affect milk pricing, as well as the production process of dairy products, which could have an effect on consumer satisfaction.

This research aimed to investigate the changes of chemical composition of raw cow's milk produced by Maejo Dairy Cooperative Ltd. during the summer, rainy, and winter seasons in the year of 2024. The results of chemical composition on average of raw milk in 3 seasons indicated that the contents of fat were between  $3.99\pm 0.16$  and  $4.14\pm 0.22\%$  (w/w), the contents of protein were between  $2.96\pm 0.05$  and  $3.00\pm 0.04\%$  (w/w), the contents of lactose were between  $4.40\pm 0.04$  and  $4.43\pm 0.02\%$  (w/w), the contents of total solids were between  $12.40\pm 0.16$  and  $12.48\pm 0.20\%$  (w/w), the contents of solids non fat were between  $8.40\pm 0.08$  and  $8.41\pm 0.05\%$  (w/w), the values of freezing point were between  $-0.526\pm 0.006$  and  $-0.521\pm 0.003^{\circ}\text{C}$  and the acidity was of  $0.16\pm 0.00\%$  as lactic acid.

It can be concluded that seasonal changes could have a great impact on the chemical composition of raw milk as the rainy season was the highest, followed by the winter and the summer, respectively. The contents of fat, protein, lactose, total solids, and the values of freezing point were significantly different at  $p\leq 0.05$ . It is predicted that the obtained results can be applied to related works and help farmers in the cooperative improve their cattle raising process to increase the efficiency of milk production with better nutritional quality.

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