

Milk Composition of Asian Elephants (*Elephas maximus*) in a Semi-Natural Environment in Myanmar during Late Lactation

Yadana Aung Myo Han, Ellen S Dierenfeld, Khyne U Mar, Mirkka Lahdenpera, Virpi Lummaa, Aung Aung.

A simple, practical method for measurement of fat in milk, applied to samples from mid- to late- lactating working elephants in a maternity camp in Myanmar.

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Summary

This study targeted milk composition of Asian elephants (*Elephas maximus*) during the late lactation period in a semi-natural environment in Myanmar. Samples were obtained on 6 separate dates between the wet season (Jul through Sep) and end of the dry season (Oct through Mar) from 6 mature cows in mid- (16 mo) to late lactation (38 mo). Milk composition over the eight month collection period averaged $18.9 \pm 5.54\%$ total solids, $5.25 \pm 1.85\%$ protein, $15.35 \pm 4.44\%$ fat, $0.86 \pm 0.18\%$ ash, and $0.18 \pm 0.02\mu\text{g/ml}$ vitamin E. Total solids in milk samples were significantly higher ($p < 0.05$) during the dry compared with wet season; conversely, protein values were higher in the wet season. Milk fat, ash, and vitamin E values were not significantly impacted by season in this study. Primary forages consumed ($n=10$ spp.) were also sampled and analyzed for protein, fiber fractions, and total ash. Protein ranges were higher during the wet season (11 to 25% dry matter basis) compared to the same species sampled throughout the dry season (6 to 19%), and may have positively impacted milk protein changes. Further field observations such as the variation of feed and milk composition throughout the whole year, milk composition over the entire lactation period, and the relationship of vitamin E content among feeds, blood and milk, should be investigated further in this unique study group.