



Tropentag, September 18-20, 2019, Kassel

“Filling gaps and removing traps
for sustainable resource management”

Milk Fatty Acid Composition of Camels and Cattle Grazing and Browsing in East-African Rangelands

PAUL LEPARMARAI^{1,2}, CARMEN KUNZ¹, DAVID MIANO MWANGI², ILONA GLUECKS³, MICHAEL KREUZER¹, SVENJA MARQUARDT^{1,3}

¹*ETH Zurich, Inst. of Agricultural Sciences, Switzerland*

²*Kenya Agricultural and Livestock Research Organisation (KALRO), Kenya*

³*International Livestock Research Institute (ILRI), Kenya*

Abstract

Cattle and camels are important livestock species in the semi-arid and arid rangelands of East-Africa. Their diet selection behaviour differs. Cattle are grazers preferring grasses while camels are browsers that rely on shrubs, trees and herbs. Their diets are affected by seasonal changes. The present study investigated the milk fatty acid (FA) profile of camels and two cattle types (Guernsey × Boran crossbreds and local Pokot cattle) kept on savannah rangelands in two seasons (rainy season (RS) and transition period (TP)) in Laikipia, Kenya. Twelve lactating animals per livestock type were used in RS and 12 different animals in TP, respectively (n=72 animals in total). Half of the animals from each livestock type received a urea-molasses supplement at night during confinement. The animals grazed during the day. Direct observations with bite counting were applied on one animal per day (36 observation days/season) and the chemical composition of the most selected plant species was analyzed. Intakes of nutrients and phenols were estimated. Milk samples per animal were collected at the end of each season and were analysed for FA composition using gas chromatography. Camels ingested higher contents of lignin (ADL), crude protein and phenols, with the last two parameters differing from the cattle especially in the TP. Saturated FA were generally higher in proportion in the milk of both cattle types compared to the camel milk, and increased ($p < 0.05$) from RS to TP in the milk of the cattle types, but not of the camels (season × animal type, $p < 0.001$). Proportions of monounsaturated FA were higher in camel milk than cattle milk and did not differ between seasons in camel milk, while their proportions declined in milk of both cattle types from RS to TP (season × animal type, $p < 0.001$). Proportions of polyunsaturated FA in milk decreased from RS to TP in all the three animal types but were higher ($p < 0.05$) in camel milk compared to cattle milk in both seasons. Urea-molasses supplementation had minor effects on a few FA. In conclusion, the milk FA profile of camels and cattle is differently affected by seasonal changes in forage and diet selected.

Keywords: Browser, diet selection, grazer, livestock species, milk fatty acids, season