Days in milk alters the milk fatty acid profile of grazing donkeys

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Short title: **Milk fatty acid profile of grazing donkeys**

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Summary

The study reported in this Research Communication was carried out to determine how days in milk (DIM) affects the milk fatty acid (FA) profile of grazing donkeys. Donkey milk is very similar to human milk, containing bioactive molecules such as FAs and proteins. However, there is a lack of scientific and technical information about factors influencing the FA profile of asinine milk. Therefore, seven multiparous Pega donkeys, *Equus asinus*, were used to assess the effect of DIM on milk FA profiles. The animals were kept in an exclusively extensive system with milk samples collected once a week for 16 weeks. Samples comprised average of lactating days of the donkeys of 55, 110, 165, 220, and 275 DIM. The linear and quadratic effect of DIM on the milk FA profile was tested, and most individual FAs remained unchanged throughout lactation. However, stearic and oleic acids linearly decreased ($P < 0.05$), while total polyunsaturated FA (PUFA) and n-3 FA increased ($P < 0.05$) with DIM. The milk FA profile of grazing donkeys is influenced by lactation days and is characterized by high concentrations of PUFA, mainly α-linolenic and linoleic acids, by a low n-6 to n-3 ratio (0.66 ± 0.08), mainly owing to higher levels of linolenic acid (16.8 ± 2.06). Because there was an increase in total n-3 PUFA and n-3 FA after 200 DIM, the late lactation period may be the most favourable for the consumption of asinine milk when fed exclusively fresh forages.