

Assessing effects of tannin-rich Sainfoin supplements for grazing dairy goats on feed protein efficiency

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SUPPLEMENTARY FILE

Methodological details

Sainfoin production

The sainfoin (*Onobrychis viciifolia*, variety Perly) was grown as a pure stand 2014 in Switzerland at N 46.85° and E 6.91°. The 2nd regrowth was cut, dried one day on sward and then transported to a commercial drying and pelleting facility for pellet production. The produced pellets had a diameter of 8 mm. Lucerne pellets (8 mm diameter) were obtained from a commercial merchant.

Analysis of condensed tannins

Condensed tannin content of the experimental pellets was analysed based on the method of Grabber et al. (2013). Briefly, we suspended 50 mg of ground (0.5 mm) plant material with 5 ml of water in a 45 ml thick walled glass tube. Then we added 30 ml n-butanol-HCL and gently swirled the glass tubes for 80 minutes in a water bath at 95°C. The samples were then immediately cooled to 20° C. The supernatant was filtered through a 1.0 µm filter and extinction was measured at 556 nm. Samples were analysed in triplicates and were compared to a purified standard of condensed sainfoin tannins. Standard production procedure in brief as follows: We

extracted the ground plant material with acetone/water (70:30 v/v). The extraction solution was exempted from acetone using the rotary evaporator, where water bath was not exceeding 38 °C. Lipids and pigments were extracted from the remaining water phase with diethyl ether, fibres were removed by centrifugation. The remaining extract was again concentrated by rotary evaporation. The condensed tannins were separated using the Sephadex LH-20-resin.

Feeding



Fig. S1. Individual supplementation with pellets in the milking parlour



Fig. S2. Grazing during the day



Fig. S3. Ad libitum hay offer during the night in the barn.

Result details

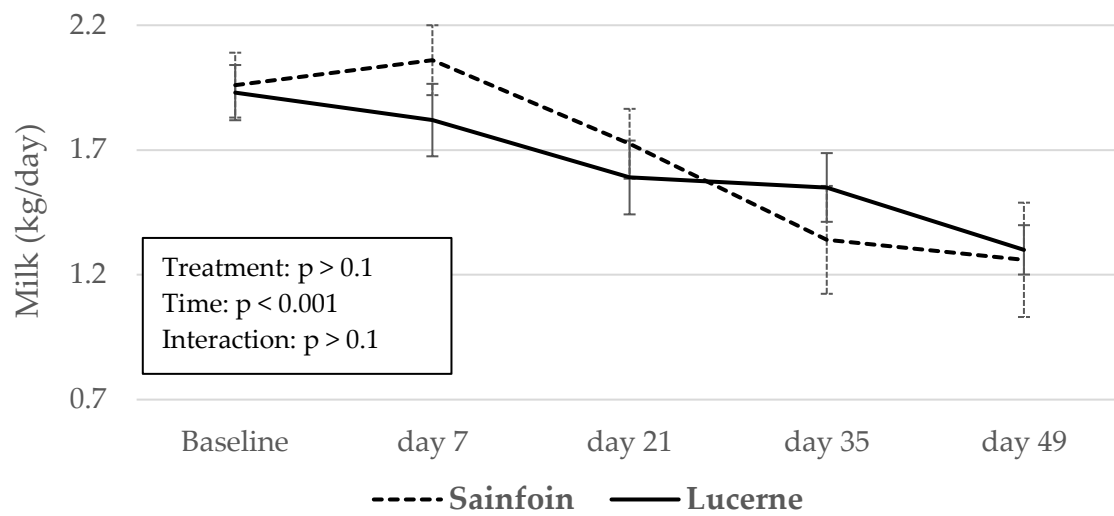


Fig. S4. Daily milk yield in Alpine goats supplemented with either sainfoin or lucerne pellets (n=10).

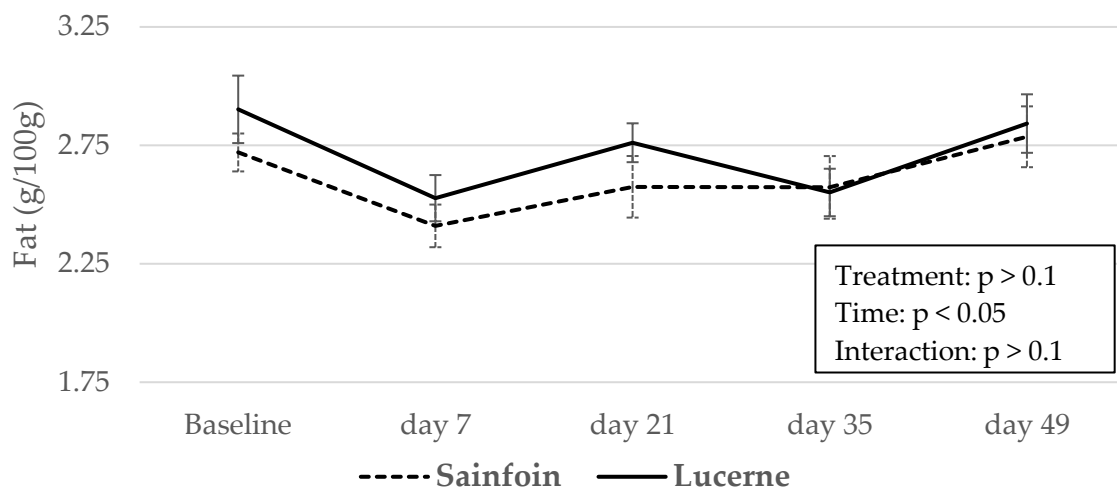


Fig. S5. Fat concentration in milk of Alpine goats supplemented with either sainfoin or lucerne pellets (n=10).

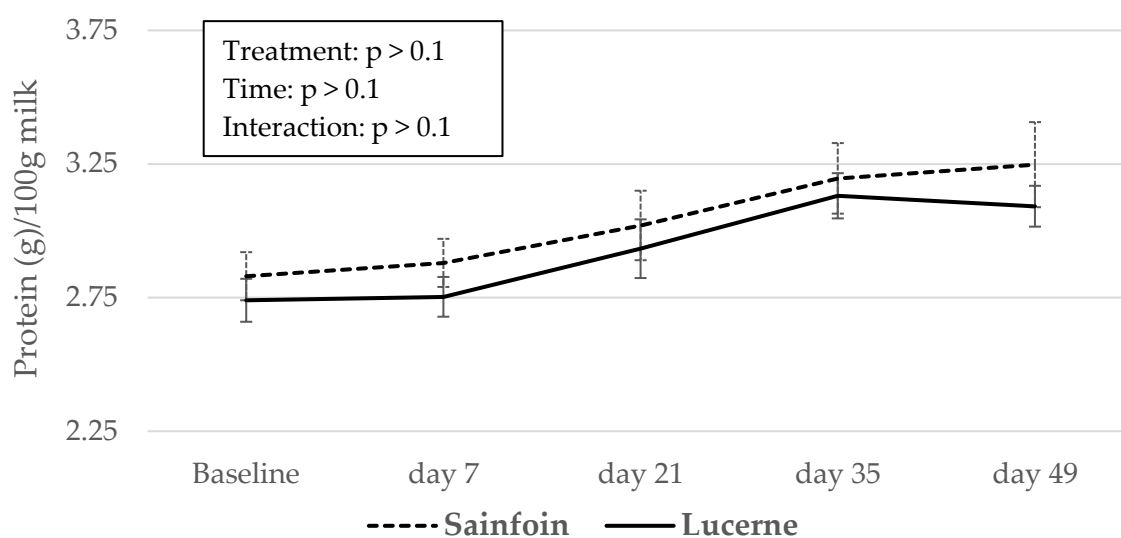


Fig. S6. Protein concentration in milk of Alpine goats supplemented with either sainfoin or lucerne pellets (n=10).

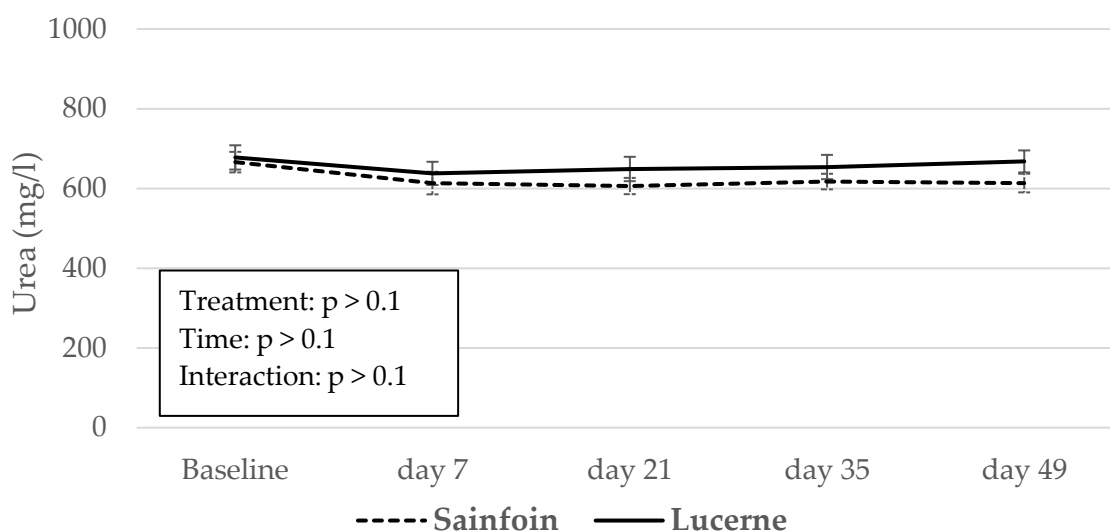


Fig. S7. Urea concentration in milk of Alpine goats supplemented with either sainfoin or lucerne pellets (n=10).

Reference

Grabber JH, Zeller WE and Mueller-Harvey I (2013) Acetone Enhances the Direct Analysis of Procyanidin- and Prodelphinidin-Based Condensed Tannins in Lotus Species by the Butanol-HCl-Iron Assay. *Journal of Agricultural and Food Chemistry* **61**, 2669–2678.