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Voluntary feed intake, nutrient digestibility and rumen fermentation characteristics of Iranian Balouchi sheep fed *Kochia scoparia*

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Kochia spp. are halophytic plants that typically growth in salty land and may have good potential as forages in ruminant feeding. Consumable parts of *Kochia scoparia* (leaves and stems) were harvested at mid bloom stage from Salinity Research Centre of Birjand University (with alkaline soil and maximum air temperature 40 °C). Ten cannulated Balouchi ewes (48±2 kg) were transferred to metabolism cages and randomly allocated to two dietary treatments (100% kochia or 100% alfalfa). The forage samples were chopped and composite before air-drying. Dried samples were analyzed for total N, NDF, ash, Na, Cl and K. Animals had *ad libitum* access to feed and water. The results showed the voluntary dry matter intake of kochia (579.8 g/d) was lower than alfalfa (1,052.1 g/d) ($P<0.01$). *Kochia* had lower apparent digestibility of DM, OM, CP, and NDF compared with alfalfa (452, 412, 490 and 310 vs 620, 629, 682, and 515, respectively) ($P<0.05$). At different times after feeding (0, 0.5, 1, 2, 3, 4, 6, 8 hours) mean ruminal pH were similar for two treatments. However, the ammonia-N concentration was higher ($P<0.05$) in ruminal fluid of ewes fed alfalfa ($P<0.05$). The linear relationship for the sampling time was significant ($P<0.05$).

Effects of ascorbic acid, α -tocopherol and red chicory on *in vitro* hind-gut fermentation of two pig feeds

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Possible effects on hind-gut fermentation pattern due to an addition of ascorbic acid (AA), α -tocopherol (α -T) or red chicory water extract (RCWE) were studied with an *in vitro* automatic batch system, equipped with a gas pressure detector. A pig commercial feed (CF) and a corn meal (CM) were incubated for 48 h at 37 °C with buffered caecal fluid collected from 3 pigs at the slaughterhouse. Each feed sample (1 g), milled at 1 mm, was tested without additive (C) or with the addition of AA, α -T or RCWE (1 mg/g of feed) in 4 replications. Four blanks without feeds were also included. Data of gas production (GP) were fitted with a monophasic model. At the end of incubation the residual fluid was analysed for ammonia (NH₃) and volatile fatty acids (VFA) contents. Data were subjected to ANOVA. After 48 h of incubation significant differences between CF and CM were observed for GP at 48 h (217.4 vs. 278.7 ml; $P<0.01$), NH₃ (11.1 vs. 8.0 mmol/l; $P<0.01$) and VFA (3.06 vs. 3.27 mg/ml; $P<0.01$). With respect to C, all the 3 additives significantly increased the asymptotic GP (254.4 vs. 263.7, 264.0 and 264.2 ml for C vs. AA, α -T and RCWE, respectively; $P<0.01$), but did not influence the measured GP at 48 h and the others GP kinetic parameters. With respect to C, the 3 additives significantly decreased the fluid content of propionate (0.93 vs. 0.89, 0.87 and 0.90 mg/ml, for C vs. AA, α -T and RCWE, respectively; $P<0.05$) and, consequently reduced total VFA. With respect to C, RCWE also significantly reduced NH₃ (9.8 vs. 9.3 mmol/l; $P<0.05$), while the other additives had no effects. In conclusion, all the 3 additives showed to exert effects on the *in vitro* hind-gut fermentation.