Book of Abstracts

of the 75th Annual Meeting of the European Federation of Animal Science

Book of Abstracts No. 34 (2024)
Florence, Italy
1-5 September, 2024

Session 89 Poster 30

In vitro fermentation parameters of intensive beef fattening diets with sainfoin as hay or pellets in the concentrate

M. Joy[1], C. Baila[1], I. Casasús[1], S. Lobón[1], D. Villalba[2], M. Blanco[1]
[1] Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA) - IA2, Avda. Montañana 930, 50059 Zaragoza, Spain, [2] Universitat de Lleida, Av. Rovira Roure 191, 25198 Lleida, Spain

Sainfoin (Onobrychis viciifolia) can be preserved as pellets or hay to be included in intensive beef cattle feeding systems, which typically use grain-based concentrates and straw in the Mediterranean area. An experiment was carried out to compare the in vitro fermentation parameters of three beef fattening diets recorded in an in vivo trial: 90% concentrate + 10% straw (C+straw), 80% concentrate + 20% sainfoin hay (C+SFhay), 90% concentrate including 15% sainfoin pellet + 10% straw (CSF+straw). Samples of the diets were evaluated in an in vitro assay using an Ankom system for 48 h in 3 separate runs. Gas and methane (CH4) production, dry matter degradability (IVDMD), ammonia (NH3-N), and volatile fatty acids (VFA) were studied. The diet affected gas and CH4 production and the proportions of VFA ($P<0.05$) but did not affect the CH4:gas ratio, IVDMD, total VFA, and NH3-N ($P>0.05$). The diet CSF+straw produced more gas and CH4 than the C+straw diet ($P<0.05$) and more gas than the C+SFhay diet ($P<0.01$), both with similar CH4 production. Regarding the proportions of VFA, the C+straw diet had lower acetic acid and butyric acids and higher propionic, isobutyric, and valeric acids than the CSF+straw diet ($P<0.001$); and only lower acetic acid and higher propionic acids than the C+SFhay diet ($P<0.001$). In conclusion, compared to the C+straw diet, feeding sainfoin hay only modified the proportions of acetic and propionic acids, whereas the inclusion of sainfoin pellets in the concentrate had a greater effect on the in vitro fermentation parameters, increasing gas and methane production, and modifying most of the VFA proportions.

Session 89 Poster 31

Correlation with plasma leptin levels and body fat mass in mature beef cows grazing different herbage allowances of grasslands

A. Casal[1], P. Soca[1], M. Carriquiry[1]
[1] Facultad de Agronomía, UDELAR, Departamento de Producción Animal y Pasturas, Av Garzon 780, 12900 Montevideo, Uruguay

The aim of this study was to evaluate the effect of controlling the intensity of grassland grazing (Campos biome), through control of herbage allowance (HA), on distribution of body fat and plasma leptin levels in beef cows of different genotype. Mature beef cows (n=32) were used in a complete randomized block design with a factorial arrangement of herbage allowance (2.5 vs. 4kgDM/d; LO vs. HI) of native pastures (52%DM, 8.4%CP, 39.7%FDA,) and cow genotype (CG; Angus- Hereford vs. F1 reciprocal crosses; PU vs. CR). The experiment was conducted for 3 years and at the end of the third year at 192±10 days postpartum cows were slaughtered and weight and samples of all tissues were collected for chemical composition analyses. Prior to slaughter, cow BW and BCS were recorded, and blood samples were collected. Means from a mixed model analysis were considered to differ when $P\leq0.05$. Slaughter BW tended ($P=0.08$) to be greater for CR than PU cows. Body fat mass (BFM) or carcass fat and BCS were not affected by HA, CG or their interaction. The visceral fat mass was affected ($P=0.05$) by the interaction between HA treatment and CG. Plasma leptin levels was not affected by HA, CG or their interaction. Plasma leptin levels was positive correlated with: BW ($P=0.03$, $r=0.42$), BCS ($P=0.03$, $r=0.43$), BFM ($P\leq0.01$, $r=0.78$), carcass fat ($P\leq;0.01$, $r=0.80$). Though there was no effect of HA treatment or CG on the quantity of body fat mass and plasma leptin level, the animals with more BFM are those who had higher levels of plasma leptin. The high correlation between plasma leptin levels and fat carcass that is consistent with this type of fat that synthesizes this hormone.