CAN DIETARY CAROB PULP POSITIVELY MODIFY THE BEHAVIOURAL PATTERN IN FATTENING PIGS?

Bottegal, Diego[1*]; Casado, Blanca[1]; Bernaus, Laia[1]; Lobón, Sandra[2]; Latorre, María Ángeles[3]; Argemí Armengol, Immaculada[1]; Álvarez Rodríguez, Javier[1]

[1]Universitat de Lleida, Rovira Roure 191, 25003, Spain. [2]CITA-Aragón, Av. Montañana 930, 50059, Spain. [3]Universidad de Zaragoza, C/Miguel Servet 177, 50013, Spain

*Presenting author: diego.bottegal@udl.cat

This study aimed to assess if the inclusion of dietary carob pulp (Cp, a potential antioxidant and fiber-enriched feedstuff) and high doses of vitamin E can affect the repertoire of behaviours and welfare in fattening pigs. A total of 220 crossbred pigs of both sexes (entire males and females) of 130 days of age and 78.4 kg BW were housed in 44 pens (5 pigs/pen and 0.94m^2/pig) into two similar barns at BonÁrea Group experimental farm. During 39 days, the animals were fed *ad libitum* with one of 4 iso-energetic and iso-protein diets or treatments in a 2 x 2 factorial design with 2 Cp levels (0 *vs.* 20%) and vit E (30 *vs.* 300 IU/kg). The days 9,16, 30 and 36 of the study, instantaneous scan sampling was performed on 8 pens/treatment every 10 min during three 1.5 h-length sessions (early morning, mid, morning, and mid-day) to record behavioural activity budget patterns. Eleven behaviours were measured: drinking, eating, lateral and ventral lying, dog sitting, standing, explorative activity, locomotion, positive social activity, and negative social activity (sum of fighting and mounting behaviour). Behavioural data (% of animals performing an activity in each scan sampling) were transformed to arc sine and analysed by a linear mixed model (diet, session, sex and barn as fixed effects and day and pen as random effect). No interactions nor Vitamin E effects were found on pigs' activity, so they were not considered into the model. The animals which received a Cp diet showed less ($p<0.05$) standing (2.14 *vs.* 2.86%) and drinking activity (0.85 *vs.* 1.23%), but more eating behaviour (8.35 *vs.* 7.24%) compared with control animals. Session effect was found ($p<0.0001$) on lateral and ventral lying, eating, drinking, exploring and locomotion. Pigs presented more ventral lying posture and eating behaviour during early morning. In the mid-morning more drinking and lateral lying were found, which represents reduced physical activity and reflects enhanced satiety. Finally, animals again increased ($p<0.0001$) the activity (eating, exploring and locomotion) and tended ($p<0.07$) to have more positive social activities in the mid-day. Female pigs spent more time drinking (1.27 *vs.* 0.82%), exploring (12.60 *vs.* 10.85%) and standing (3.71 *vs.* 1.50%) than entire males, which showed more negative social behaviours (0.80 *vs.* 0.20%). Although Cp-fed pigs partially modified their behavioural pattern, our hypothesis that higher fiber content of Cp might increase satiety and hence decrease pig frustration (i.e.; dog sitting) or negative social activity could not be confirmed.