

## Effect of olive cake in growing pig diets on faecal microbiota fermentation and composition

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The intestinal microbiota plays a critical role in the metabolism and health of the host. The present study investigated the impact of two types of olive cake on short-chain fatty acid (SCFA) concentrations and the faecal microbiota composition of pigs. A total of 30 pigs (Landrace x Large white) with an initial body weight (BW) of 47.9±4.21 kg were divided into three groups according to the feed they received: control feed (C), feed with 200g/kg of partially defatted olive cake (PDOC) or feed with 200g/kg of cyclone olive cake (COC). Faecal samples were collected from each animal after 3 weeks of the feeding trial. Microbiota composition was analysed by sequencing the V3-V4 region of the 16S rRNA gene. The results showed that the COC group had more total SCFAs, acetic acid, butyric acid, and caproic acid (P<0.05) than the other two groups. Heptanoic acid was higher in the PDOC group than in the C and COC groups. No significant differences were found among groups in alpha diversity indices (p>0.05). At the phylum level, *Firmicutes* and *Bacteroidota* were the predominant phyla across the three groups, accounting for more than 93% of the total community. However, *Spirochaetota* was significantly (p<0.05) more present in the C group than in the PDOC group, suggesting a severe possibility of gut inflammation in this group. *Plantomycetota* was significantly more abundant (p<0.05) in the PDOC group than in the C group. The relative abundances of *Eggerthellaceae* and *Allisonella* were significantly (p<0.05) enriched in the COC group compared to the C group. However, *dgA-11\_gut\_group* was more abundant (p<0.05) in the C group than in the COC group. These results suggested that supplementing pigs' diets with olive cakes may beneficially affect pigs' gut health without altering the diversity of microbial communities. This work was supported by the project IVIA-GVA 52201L from IVIA (co-financed by the EU through the ERDF Program 2021-2027 Comunitat Valenciana). BD received PhD scholarship (GRISOLIAP/2020/023).