diet (CON); ii) CON + social stress (SS); iii) CON + OBE + SS (OBE + SS). OBE corresponded to a standardized composition with > 0.2% of hydroxytyrosol and > 2.5% of triterpenes dosed at 2.5 kg/t. Piglets were socially stressed by mixing them from different pens of the same treatment for three consecutive days (day 22 to day 25). Thereafter, 12 animals/treatment were sacrificed and ileum samples collected for gene expression and histological analyses. Data were analysed by One-Way Anova (GraphPad v9). Group SS significantly increased ($P < 0.05$) the apparently degranulated mastocytes compared to CON (50% vs 33%) and showed an up-regulation ($P < 0.05$) on the relative expression of SGLT1 (1.1 vs 1.5), GluT2 (1.1 vs 1.8), Occludin (1.0 vs 1.4), E-Cadherin (1.0 vs 1.3) and Catalase (1.0 vs 1.4). On the other hand, IL-1β was down-regulated (1.1 vs 0.7, $P < 0.05$) whereas SOD, IL-8 and IL-10 remained unaffected. The use of OBE on piglet's diet reduced the degranulation of mastocytes induced by SS (43%, $P = 0.07$) and changed the relative expression of SGLT1 (1.3, $P < 0.05$), GluT2 (1.2, $P = 0.09$), Occludin (1.2, $P < 0.05$) and E-Cadherin (0.99, $P < 0.05$) compared to SS group. In summary, social stress has an impact on the GI barrier of weaned piglets. The use of OBE had the potential to partially revert the effects induced by SS.

P108. Lignin as intrinsic tracer: Quantification of lignin in pig faeces by 13C-IS pyrolysis-GC–MS

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Metal oxides, commonly used tracers in digesta transit and digestibility research in monogastric animals, do not well represent fibrous feed passage and digestion. The increased use of fibre-rich co-products in animal nutrition urges the development of improved tracer-methods. Therefore, our research aims to realise the use of lignin as inert and intrinsic tracer by implementing novel and specific lignin analysis using pyrolysis coupled to gas chromatography with mass-spectrometric detection (py-GC–MS) with uniformly ^{13}C labelled lignin as internal standard (IS). To validate the hypothesis that lignin does not disappear nor change in composition during passage through the pig intestinal tract, an in vivo study was conducted. Twelve boars (initial body weight 51.6 ± 4.9 kg) were allocated to a diet containing 150 g/kg wheat straw (WS) as a sole lignin source. Faeces were collected over a 48-hour period, and quantitative lignin analysis (based on 51 known lignin-derived pyrolysis products) was performed by py-GC–MS using ^{13}C labelled WS lignin as IS. The applicability of the current py-GC–MS method for measuring WS lignin in a faecal matrix was determined by assessing potential matrix effects on ^{13}C- and ^{12}C-WS lignin quantification. Compared to WS, the average total ^{13}C area and the relative abundances of selected ^{13}C pyrolysis products in faeces were distinctly lower (-34.0%, $P < 0.05$, t-test) and different ($P < 0.05$–0.1), respectively. In addition, spiking faeces with increasing concentrations of ^{12}C-WS lignin also showed a faeces matrix effect on ^{12}C lignin quantification as the expected lignin contents were not fully recovered. In conclusion, the faeces matrix affects the current ^{13}C-WS lignin-IS py-GC–MS method and therefore hinders accurate quantification of WS lignin in pig faeces. Improved mixing of faeces with IS and using ^{13}C-WS as IS instead of pure ^{13}C-WS lignin will be further investigated to optimise the ^{13}C-IS py-GC–MS method for lignin quantification in pig faeces.

P109. A novel 3 step in vitro and ex vivo model to evaluate digestibility, microbial and environmental effects of swine diets

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The objective of this study was to develop 3-step model including a standard in-vitro pepsin/pancreatin digestion followed by a hindgut fermentation step and finally an ureolysis reaction step to evaluate digestibility, microbial and environmental effects. A reference control pig diet without (C) or with a mixture of feed additives (FA: xylanase + benzoic acid) were used as treatments subsequent to step 1. Caecal inoculum from 3 individual pigs, and also a pooled inoculum from the 3 pigs were used and compared in step 2. For the ureolysis step, synthetic urea was mixed with microbial ferment obtained from step 2 in the ratio 2:1 for 20 minutes to explore the capability of the microbiome to hydrolyse urea into ammonium during slurry formation. After pepsin/pancreatin digestion (step 1) FA diet showed a 0.8% higher DM and 0.7% higher CP digestibility compared to C. In step 2, differences between inoculum used and dietary treatments on gas, ammonia and short chain fatty acid production were analysed by two-way ANOVA, although no significant differences were observed. However, the FA group tended to reduce ammonia, but only when the three inoculants were pooled ($P = 0.09$). In step 3, ammonium production from urea was stable (10.8–12.3 mg/dl) during the first 10 minutes of the reaction but rapidly increased ($P < 0.001$) to 32.8 ± 3.13 mg/dl at 20 minutes. Importantly, mean ammonium production from the inoculum of the 3 individual pigs was lower than when the inoculants were pooled (35.35 vs 30.36 mg/dl; $P < 0.01$). In conclusion, the addition of microbial fermentation, especially from a pooled inoculum, and ureolysis steps to the conventional pepsin/pancreatin digestion model offers the option of using as preliminary screening model focused on microbial metabolism. This has important implications for ex-vivo model development and also more generally for research approaches in slurry management and environmental science.

P110. Improving survival of low birth weight piglets - what is more important: Farrowing care or drenching a milk replacer?

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The use of hyperprolific sows has not only led to increased litter sizes, but also to an increased proportion of low birth weight (LBW) piglets that are more susceptible to pre-weaning mortality, and overall lower performance. A potential intervention that could improve the resilience of LBW piglets is drenching bioactive substances. However, drenching is labour-intensive and lacks consistent scientific support regarding the efficiency of commonly used bioactive substances. In this study, it was hypothesized that concentrating energy and nutrients in a dense milk replacer (DMR; 6 g in 4 mL water), reduces the required number of drenching applications, and consequently, the labour-costs, to improve LBW piglets' resilience. LBW piglets (weighing between 750 g and 1