63. Effects of dietary fibre and floor type on greenhouse gas and ammonia emissions associated with gestating sows

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Gestating sows are usually restrictedly-fed to prevent excessive body weight gain and fat deposition that may impair reproductive performance. However, feed restriction may result in stereotypic behaviours and deleterious effect of animal welfare. High fibre diets (HFD) are known to reduce feeding motivation without deterioration of performance, but the effects of HFD on pollutant emissions are few studied. Therefore, a study was carried out to investigate the effect of dietary fibre content (23% of non-starch polysaccharides (NSP) with a standard diet based on cereals vs. 44% of NSP with HFD based on sugar beet pulp) and the floor type (slatted floor vs. straw-based deep litter) on emissions of ammonia ($E\text{-}NH_3$), nitrous oxide ($E\text{-}N_2O$), methane ($E\text{-}CH_4$) and CO_2-equivalents ($E\text{-}Eq_{CO2}$). Six successive batches of 10 gestating sows were divided into 2 groups kept in 2 experimental rooms differing by the floor type. The standard diet was administered to the sows of the first 3 batches, the fibrous diet to the sows of the next 3 batches. Emissions were measured by infra-red photoacoustic detection. With the slatted floor, HFD decreased $E\text{-}NH_3$ (12.0 vs. 15.5 g $sow^{-1}.d^{-1}$) but increased $E\text{-}Eq_{CO2}$ (0.69 vs. 0.57 kg $sow^{-1}.d^{-1}$) in relation to the increase of $E\text{-}CH_4$ (18.4 vs. 12.8 g $sow^{-1}.d^{-1}$) while $E\text{-}N_2O$ were not impacted by the diet (around 0.62 g $sow^{-1}.d^{-1}$). With the straw-bedded floor, HFD increased $E\text{-}NH_3$ (12.3 vs. 9.2 g $sow^{-1}.d^{-1}$) and E-CH4 (14.6 vs. 9.6 g $sow^{-1}.d^{-1}$) but decreased E-N2O (0.99 vs. 1.64 g $sow^{-1}.d^{-1}$) with consequently similar $E\text{-}Eq_{CO2}$ for the two diets, around 0.74 kg $sow^{-1}.d^{-1}$.

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64. Generation and validation of a mouse model for conditional inactivation of Plagl1

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PLAGL1 (PLeomorphic Adenoma Gene-Like 1), also known as *ZAC* (Zinc finger protein that regulates Apoptosis and Cell cycle arrest), is a zinc finger transcription factor that has been shown to be implicated in diverse situations such as apoptosis induction, cell cycle arrest, tumor suppression or transient neonatal diabetes mellitus. Notably, *PLAGL1* undergoes genomic imprinting, the maternal allele being silenced. Constitutive inactivation of Plagl1 in the mouse induces mortality in 70% of the pups during the 3 first days after birth, presumably due to respiratory defects. The 30% surviving pups are smaller than their wild type littermates and some of them show bones and cartilage formation defects. While a role of Plagl1 in mouse embryonic development is clearly identified, little is known about its potential roles in adult stage. For instance, Plagl1 is strongly expressed in both mouse and human pituitary gland and it has been shown that this expression is lost in human Non Functioning Pituitary Adenomas (NFPAs), suggesting potential roles of Plagl1 in pituitary development and/or function, or as a tumor suppressor gene. In order to explore roles of Plagl1 in the adult mouse and/or in particular tissues, we decided to generate a conditional knock-out (cKO) mouse model using homologous recombination in embryonic stem cells. To validate the cKO model, we crossed it to an ubiquitously Cre-expressing mouse to generate a constitutively inactivated Plagl1 allele. Our phenotypic data are consistent with previously published data for constitutive inactivation of Plagl1, thus validating our Plagl1 cKO model for future use.
