This study was conducted to determine the pre-caecal and faecal digestibility of lactulose and inulin and the influence of these substances on nutrient digestibility and microbial characteristics. In metabolic trials three of six male growing pigs (German Landrace x Pietrain) were fitted with an ileo-rectal anastomosis (IRA) in end-to-end technique with preserved ileo-caeco-colic valve. The metabolic trials were conducted from day 21-63 after surgery. The remaining pigs were used as intact partners (IN) for the IRA pigs. The experimental diets, based on corn, wheat, barley and soybean meal, were supplemented with either 1.5% lactulose or 2% inulin in replacement of diatomaceous earth (control). Pre-caecal digestibility of lactulose and inulin was assessed to be 79 and 98%, respectively. Faecal digestibility was determined as 100%. The supplementation of lactulose and inulin had only minor effects on the pre-caecal and faecal digestibility of nutrients. Significant differences in nutrient digestibility were obvious between IRA and IN pigs, whereas the IRA pigs showed lower digestibility values with the exception of ether extracts (EE). Bacterial population in the digesta of IRA and IN pigs were not affected by the experimental diets except the concentration of gram-negative anaerobes, which inclined when the IRA pigs received the lactulose diet. The pH of chyme
was significantly lower than the pH of faeces, however the pH was unaffected by the different supplemented diets. The concentration of volatile fatty acids (VFA) in pre-caecal chyme decreased significantly when IRA pigs received the lactulose supplemented diet whereas VFA in faeces were unaffected by the supplementation. IRA pigs administered with lactulose excreted more N via the urine, but the nitrogen balance remained unaffected. From the present investigation it can be concluded that lactulose and inulin did only partly or scarcely fulfill the expectation of acting as prebiotics in pigs.