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The source of fiber and Roxazyme® G2 interacted to influence the length of villi in the ileal epithelium of growing pigs fed fibrous corn-soybean dietsFelix Fushai¹, M Tekere², M Masafu², F Siebrits³, F V Nherera-Chokuda⁴ and A T Kanengoni⁵¹University of Venda, South Africa²University of South Africa, South Africa³Tshwane University of Technology, South Africa⁴Agricultural Research Council, South Africa⁵Johannesburg Zoo, South Africa

The effects of dietary fiber source on the histomorphology of the ileal epithelium were examined in growing pigs fed high fiber (242-250 g total dietary fiber kg⁻¹ dry matter) diets fortified with Roxazyme® G2. The control was a standard, low fiber (141 g total dietary fiber kg⁻¹ dry matter) diet formulated from dehulled soybean (*Glycine max*), corn (*Zea Mays*) meal and hominy chop. Five fibrous diets were evaluated in which fiber was increased by incorporating corn cobs, soybean hulls, barley (*Hordeum vulgare L.*) brewer's grains, Lucerne (*Medicago sativa*) hay or wheat (*Triticum aestivum*) bran into the control diet. Each diet was duplicated and 220 mg Roxazyme® G2 kg⁻¹ dry matter was added to one of the mixtures. Seventy-two (72) intact Large White X Landrace male pigs of weight 32±5.6 kg pigs were allocated to the diets to balance pig live weight in a complete randomized design with a 2 (fiber source) X (enzyme) factorial arrangement of treatments. The pigs were fed ad libitum until slaughter at 94±2.6 kg live weight. Ileal tissue samples were taken at a point 50 cm above the ileal-cecal valve. Villi length and area, and crypt depth were measured by computerized image analysis. The villi length: crypt ratio was calculated. The diet and the supplemental enzyme did not affect ($p>0.05$) any of the measured parameters. Diet X enzyme interaction was significant ($p=0.016$) for villi length, whereby the enzyme reduced the villi length of pigs on the soy-hulls, standard and wheat bran diets with an opposite effect on pigs on the corn cob, brewer's grain, lucerne diets.

Biography

Felix Fushai has expertise in animal nutrition, with an interest in both monogastric and ruminant nutrition. His main research interest is in optimizing nutritional, economic and environmental outcomes in the utilization of nonconventional feedstuffs in mitigation of the effects of climate change on the conventional livestock feed supply chain.

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