In vitro techniques for the assessment of the nutritive value of feed grains for pigs: a review

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Abstract

The philosophy inherent in developing in vitro digestibility assays for dietary energy and protein is reviewed and an historical account is given of the development of such assays for the pig. General principles to be considered in the development of in vitro digestibility assays are discussed, as are limitations of the in vitro approach. The importance of choosing the most appropriate in vivo measures of digestibility for the evaluation of in vitro assays is stressed. For protein sources that do not contain anti-nutritional factors or plant fibre, ‘true’ ileal digestibility should be the in vivo baseline, while plant proteins should be tested against ‘real’ ileal digestibility. There is a dearth of adequately conducted validation studies for in vitro digestibility assays. It appears that the 3-step (pepsin, pancreatin, Viscozyme) closed in vitro system to allow prediction of organic matter and gross energy digestibility in the pig has particular promise for practical feed evaluation. Similarly based protein digestibility assays may require further development before they can be applied with confidence.

Full Text