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EFFECTS OF SODIUM HYDROXIDE TREATMENT ON THE UTILIZATION OF PIGGERY WASTE

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The action of sodium hydroxide in increasing the digestibility by micro-organisms of lignocellulosic materials is well known; Jackson (1977) has reviewed the effects on cereal straws. Pig faeces, containing 47% neutral detergent fibre (NDF), 26% acid detergent fibre (ADF), and 6% lignin, is similarly a lignocellulosic material that would be expected to respond to sodium hydroxide treatment and thus improve its utilization during fermentation by rumen micro-organisms and by anaerobic digester micro-organisms producing methane as an end-product.

DIGESTIBILITY DETERMINATIONS

In vitro organic matter digestibilities increased linearly up to 7 and $9\,{\rm g}$ NaOH/100 g DM. At 9 g NaOH/100 g DM the digestibility value was 48% compared with 29% for untreated faeces.

An experiment with sheep fed diets containing 70% hay and 30% untreated faeces or 30% faeces treated with 7 g NaOH/100 g DM yielded a similar result. In addition, the digestibility coefficients for NDF, ADF, cellulose and hemicellulose were 33, 33, 40 and 33 respectively for the untreated faeces and 63, 47, 54 and 90 for the treated faeces.

GAS PRODUCTION FROM ANAEROBIC DIGESTERS

Laboratory scale anaerobic digesters were used to **assess** the effects of sodium hydroxide treatment of pig faeces **on** gas production. A batch process was used at a loading rate of 12 g DM/l, with anaerobic digester mixed liquor as the inoculum.

Sodium hydroxide treatment increased both the rate and amount of gas produced. The fastest rate of gas production was from faeces treated with 9 g NaOH/100 g DM and the greatest volume was from faeces treated with 7 g NaOH/100 g DM. Compared with untreated faeces the maximum gas production was increased by 53% (from 372 to 569 ml/g OM).

JACKSON, M.G. (1977). Anim.Fd.Sci.Techn. 2 : 105.

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