

Use of in vitro gas production technique in the evaluation of fungal treated maize husk

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Abstract

Maize husk is potential feed resources for ruminants if properly harnessed. Its uses is however limited by high fibre content and low digestibility which can be enhanced by fungal treatment. Maize Husk was degraded for 21 days using three different fungi: *Pleurotus tuber-regium*, *Pleurotus ostreatus* and *Pleurotus pulmonarius*. The resulting substrates were analyzed for changes in the chemical composition. The result obtained showed an increase in the crude protein (CP) from 6.62% for the control (untreated maize husk) to 9.25% for the *Pleurotus tuber-regium* treated maize husk (PTMH), 8.06% for the *Pleurotus pulmonarius* treated (PPMH) and 7.87% for the *Pleurotus ostreatus* treated (POMHA) maize husk. Contrarily, the crude fibre (CF) decreased significantly ($P < 0.05$) from 33.19% (UNMH) for the control to 15.62% (PTMH). The CF fractions (NDF, ADF and ADL) also decreased significantly. The gas rate production (c) constant obtained in all the substrates under study were not significant. Gas volumes at 24h highest in PPMH (30ml) with the least recorded in UNMH (15ml). The fermentation of the insoluble, but degradable fraction (b, ml) range from 13 (control) to 27.33 (PPMH). The estimated organic matter digestibility also increased from 33.22% in the control to 46.99% in PPMH treated samples. The highest values in short chain fatty acid (SCFA) 0.657mol and metabolizable energy (ME) 8.19 MJ/Kg DM was also estimated for PPMH. The result obtained in this study showed improvement in the CP, and in vitro digestibility after fungal treatment suggesting the possibility of recycling maize husk into value added ruminant feed.

Keywords: Maize husk, ruminants, in vitro digestibility, fungi, maize husk

Yaba College of Technology, Department of Agric. Technology, Epe Campus, Lagos

University of Agriculture, Markurdi, College of Ruminant Management and Production

Corresponding author's email: akinfemiabayomi@gmail.com

Target audience: Livestock farmers, Animal Scientists, Ruminant Nutritionists
