

The effects of effective microorganisms (EM) on the nutritive values of fungal-treated rice straw

ABSTRACT

A study to improve the nutritive values of rice straw by means of biological treatment was conducted. The rice straw was subjected to three treatments: plain rice straw (T1), rice straw treated with *Aspergillus niger* for 10 d (T2) and fungal-treated rice straw inoculated with EM (T3). All samples were subjected to proximate analysis to determine the dry matter (DM), organic matter (OM), crude protein (CP), acid detergent fibre (ADF), neutral detergent fibre (NDF), acid detergent lignin (ADL), cellulose and hemicellulose content of rice straw after eight days of fermentation. The effect of fermentation days of T3 on the nutritive values and dry matter degradability (DMD) of the three treatment groups were also carried out on nine fistulated goats using nylon bag technique and data were recorded at six different fermentation times. No significant ($p>0.05$) difference was observed on the chemical composition of rice straw treated with *A. niger* except the CP content increased significantly ($p<0.01$) when compared with untreated rice straw (T1). However, when the fungal-treated rice straw was inoculated with EM, significant ($p<0.01$) difference was observed in CP, OM, NDF, ADF and cellulose content of the rice straw compared with T1. It was suggested that the optimum duration of fermentation by the EM on the fungal-treated rice straw was 6d of fermentation as hemicellulose content was recorded higher than other days of fermentation, while NDF, ADF, ADL, and cellulose content were relatively lower than previous days. DMD of rice straw was improved when fungal-treated rice straw was inoculated with EM.

Keyword: Effective microorganisms; *Aspergillus niger*; Rice straws