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Research Article

Role of Humic Acid in Improving the Nutrient Content and Quality of Fermented Palm Oil Sludge

Mirnawati, Ade Djulardi and Gita Ciptaan

Department of Animal Feed and Nutrition, Faculty of Animal Science, Andalas University, 25163 Padang, Indonesia

Abstract

Objective: An experiment was conducted to understand the effects of different microbes and doses of humic acid on the quality and nutrient content of Fermented Palm Oil Sludge (FPOS). Materials and Methods: The experiment was conducted using a 2× 3 factorial Completely Randomized Design (CRD) with 3 replications. The first factor was two species of microbe, *Neurospora sitophila* and *Neurospora crassa* and the second was different doses of humic acid: (1) 100 ppm, (2) 200 ppm and (3) 300 ppm. The study parameters were the crude protein content, crude fiber content, nitrogen retention and digestible crude fiber content of FPOS. Results: The study parameters were more significantly affected by the interaction between the type of microbe and the dose of humic acid ($p<0.01$) than the humic acid dose alone. FPOS treated with *Neurospora crassa* and humic acid at 200 ppm showed better values for crude protein (23.74%), crude fiber (20.14%), crude lipid (2.70%), nitrogen retention (60.97%) and digestible crude fiber (55.63%) compared to FPOS treated with *Neurospora sitophila*. Conclusion: It is concluded that POS fermented with *Neurospora crassa* and 200 ppm humic acid provides the best food content and quality of FPOS.

Key words: Fermentation, microbes, humic acid, palm oil sludge, quality, nutrient

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Corresponding Author: Mirnawati, Department of Animal Feed and Nutrition, Faculty of Animal Science, Andalas University, 25163 Padang, Indonesia

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.