The Performance of Bali Cattle Fed Ration Containing *Pleurotus osteorus* Fermented and Urea-Ammoniated Sago Waste

I. Sangadji [1], A. Parakkasi [2], K.G. Wiryawan [2], B. Haryanto[3]
[1)] Department of Animal Science, Faculty of Agriculture, Pattimura University, Ambon
[2)] Nutrition and Feed Technology Department, Faculty of Animal Science, Bogor Agricultural University, Bogor
[3)] Indonesian Research Institute for Animal Production, Bogor

ABSTRACT

Sago waste is an agricultural by product with low nutritive value. The present experiment was designed to study the effects of using treated sago meal to substitute grasses on Bali cattle productivity. Fifteen young male Bali cattle, approximately 18-month of age were allocated to experimental treatments according to the average weight of the animal in a randomized complete block design. Native grass was used in the experiment. The dietary treatments were (1) 60% grasses and 40% concentrate, as control, (2) substituting 15% of grasses with fermented sago waste, (3) substituting 30% of grasses with fermented sago waste, (4) substituting 15% of grasses with ammoniated sago waste, and (5) substituting 30% of grasses with ammoniated sago waste. The results showed that substituting 50% of the grass with treated sago waste gave the greatest daily weight gain (0.66kg) as compared to the other treatments ($P<0.05$). Intake and digestibility of feed dry matter, organic matter and fiber components were not significantly different among treatments. However, the digestibility of ADF and cellulose were greater when 15% and 30% of the grass were substituted with fermented sago waste. The feed to gain ratio was most efficient in the animal receiving 50% bio-processed sago waste as substitute of native grass. The rumen characteristics showed that concentration of NH_3 and VFAs were not significantly different among treatments. It was concluded that bio-fermentation of sago waste using *Pleurotus ostreatus* and ammoniation with urea improved its nutritive value and could be used to substitute native grass for cattle.

Key words: sago waste, biofermentation, Pleurotus ostreatus, ammoniation, beef cattle

INTRODUCTION

Lately, the demand of beef in Indonesia increase rapidly, therefore efforts to accelerate the beef production should be done. Bali cattle an alternative breed to be developed to fill the gap between the supply and demand of meat. Beef consumption increased from 330,300 ton in the year 2002 to 389,300 ton in 2006. Unless an appropriate move in accelerating beef production being taken, the beef cattle population will decrease significantly. Fortunately, the cattle population trend to increase from 10,532,889 in 2004 to 11,869,158 in 2008 (DITJENAK, 2008).

The primary constraint to cattle is productivity that the requirement of nutrient for a better production is not satisfied by the existing feed condition, especially protein so that the livestock do not perform their maximum genetic capacity. The grasses in tropical countries are mostly of low quality and usually fed to the animal at mature stage in which advanced lignifications of the structural polysaccharide components have developed. Meanwhile, planting superior grasses such as elephant grass and guinea grass have a constraint of limited area.

Utilization of by products of agro industries, such as sago waste is one alternative to overcome this problem. However, it is realized that the utilization of the sago waste need preliminary treatment due to the high in fiber and low in protein content. Toharmat (2002) stated that feed with high fiber content will be slowly digested in the rumen and ends approximately after 72 hours inside the rumen.

Biological processing of sago waste that has been done was bio-fermentation using oyster mushroom. This mushroom is grouped in class of *basidiomycetes* which could be cultivated on different kinds of agricultural wastes and could also be consumed by human being. Rai and Saxena (1990) stated that cultivation is not only cheap, but also able to improve the quality of