



Digestibility and Carcass Characteristics of West African Dwarf Goats fed *Pleurotus tuber regium* Biodegraded Ground Nut Shells Included Diets

Dauda A

Department of Animal Science, University of Calabar, Nigeria

Abstract

A total of twenty (20) West African Dwarf (WAD) bucks having an average weight of 6.5 kg were used to study their nutrient digestibility and carcass characteristics. The animals were allotted to five treatment group four animals each randomly. The treatment diets contained varying levels of un-degraded ground nutshells (UGNS) and *Pleurotus tuber regium* biodegraded Ground Nut Shells (PT-GNS) in a Completely Randomized Design (T1=100% UGN; T2=75% UGN+25% PT-GNS; T3=50% UGN+50% PT-GNS; T4=25% UGN+75% PT-GNS; and T5=100% PT-GNS). Each animal served as a replicate. Feed and water were provided ad libitum. The experiment lasts for 84th day of feeding trial. Data on nutrient digestibility and carcass characteristics were taken and subjected to one-way Analysis of Variance (ANOVA) and where significant differences occurred, means were separated using Duncan's Multiple Range Tests (DMRT). The results showed that nutrient digestibility had no significance ($p > 0.05$) difference among the treatment diets, although the digestibility coefficient of Dry Matter (DM) was high, the observed values ranging from 92.10% (T1) to 93.21% (T5). Bucks in T5 had the highest digestibility coefficient of crude protein (93.41) while bucks in T1 had the least values. The carcass characteristics showed a significant difference ($p < 0.05$) among the treatments for carcass yield, carcass weight, and dressing percent increased as the percent substitution of Un-degraded Ground Nut Shells (UGNs) with *Pleurotus tuber regium* Groundnut Shell (PT-GNS) increased from 0 to 100%. Wholesale

cuts also showed significant difference ($p < 0.05$) among treatments. Thus, *Pleurotus tuber regium* can be used to improve the low-quality farm by-product such as groundnut shell to increase animal protein production.

Keywords

Digestibility; Carcass; *Pleurotus tuber regium*; Groundnut shell; Goat

Introduction

Agricultural wastes are the most abundant ones present on earth comprising 50% of all biomass with an estimated annual production of 50 billion tons [4]. In the developing countries, inclusion of fibrous feed in the diet of ruminant animals is a common practice. The animals are fed with materials left in the field after harvesting the target crops [5]. These fibrous materials are low in protein, vitamins, and mineral, and high in crude fiber [6,7]. A successful exploitation of agricultural waste will not only improve environmental sanitation but also provides economically utilizable products [8].



The use of microorganisms to convert carbohydrates, lignocelluloses, and other industrial wastes into feedstuffs rich in protein is possible due to the ability of microorganisms to grow very fast on the substrate [12]. In Nigeria, groundnut shells abound, bio-converting them to livestock feeding will reduce the environmental hazard of burning them and also help in providing better quality feedstuff for ruminant animals [13]. The aim of this study is to evaluate nutrient digestibility and carcass characteristics of West African Dwarf Goats fed *Pleurotostuber regium* biodegraded ground nut shells included diets.

Result and Discussion

Results for the dry matter and nutrient digestibility of the West African Dwarf goats fed diets containing untreated and treated groundnut shells are presented in (Table 1). The results showed no significance ($p > 0.05$) difference among the treatment diets. The digestibility coefficient of Dry Matter (DM) was high, the observed values ranging from 92.10% (T1) to 93.21% (T5). Bucks in T5 had the highest digestibility coefficient of crude protein (93.41) while bucks in T1 had the least values.

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E-mail: ayubadauda87@gmail.com