

PDF - PROXIMATE AND FIBER ANALYSIS OF MULTI-NUTRIENT FEED BLOCK MADE WITH PINEAPPLE PULP AND DIFFERENT BROWSE PLANTS - researchcub.info

INTRODUCTION

Proximate analysis helps in determination of the major constituents of feed and it is used to assess if a feed is within its normal compositional parameters or somehow being adulterated (Jegade A.V 2015)

Goat as Small ruminants animal with four compartment stomach,(Rumen, Reticulum, Omasum and Abomasum) suffer from scarcity in feed supply and pasture quality in the humid region of West Africa, About 98 percent of the smallholder ruminants farmers mainly depend on naturally available forage for animal feeding which is abundant during the wet season (Perera *et al.*, 2007). However, the quantity and quality of these forages decline during the dry season which leads the smallholder farmers to utilize agricultural crop residues to keep the animals alive. During the dry season when the natural vegetation is of poor nutritive value (Akinfala and Tewe,2002; Aye, 2007). Browse plants with high nutritive values have been successfully fed to small ruminants in alley farming systems (Ngwa and Tawah, 2002; Fasae and Alokun, 2006).

Ruminant animal production is a very important component of agricultural sector in Nigeria economy. The nation's meat supply is almost exclusively derived from ruminant livestock. The major constraint of increasing small ruminant productivity is the improvement of ruminant animal nutrition and feed supply (Akangbe and Adeleye, 2002). The provision of good quality forage all year round is a major problem of Small ruminant livestock production in the tropics. It is a known fact that, the availability of good quality green feed for ruminant animal is seasonal in the dry tropics. This explains why most ruminant animals under extensive system of rearing have low productivity and poor body condition at the peak of the dry season (Rosiji and Iposu, 2002).

In an attempt to alleviate ruminant feed supply problems and looking for potential feed resources, particularly those which survive during the dry season call for the use of conventional feedstuffs for the production of ruminant animals. Research had shown that, these conventional sources may not be profitable due to the escalating cost of production and competition between man and livestock. In this regards, the necessity to search for cheaper and locally available alternative feed materials among nutritionists that can meet the nutritional requirements of ruminant animals arise. Such feed materials should have the advantage of cost, availability as well as possess very low human food preference to eliminate competition between man and Multi-nutrient feed block are lick blocks containing urea, molasses, vitamins, minerals and other nutrients (Hendranto *et al.*, 1989). Due to scarcity and cost of molasses it is replaced with pineapple pulp (*Ananas comosus*) so that livestock farmers in Nigeria will have easy access to it.

These pulps are classified as most versatile feeds that can make important addition to the amount of locally produced feeds for sheep. As feed, they are easily mixed with other feed ingredients, exert mildly laxative effect and help to alleviate the environmental impact of fruits processing. Orange and pineapple pulps are high in energy and fiber but low in protein content with imbalance between calcium and phosphorus (Rogerio *et al.*, 2007; Fung *et al.*, 2010). Sheep have a unique ability to convert human consumption into useful end products that are utilized for productivity and growth. This is possible because of microbial fermentation taking place in the Rumen (Aka *et al.*, 2011).

The current practice among animal scientist of feeding unconventional feedstuffs (agro-industrial by-products) as alternative feedstuffs for ruminant animal production in Nigeria holds inestimable potential for the development of the sub-sector. The problem lies with harnessing, processing and utilization of these by-products (Ahamfule *et al.*, 2002). Pineapple pulp is an example of such agro-industrial by-product that can be utilized to a good advantage for ruminant animal nutrition in Nigeria. Pineapple pulp that is usually discarded as waste after processing, it is a rich source of energy but low in protein (Fadele *et al.*, 2000), yet to be probably harnessed for ruminant animal production due to its bulkiness and water content. It is hoped that, the use of this pineapple pulp or in combination with forage could result in an edible material that can be used to feed small ruminant animals.

Several solutions have been suggested by researchers to improve the nutritional quality and palatability of low quality roughages. In this regards, combined feeding of low quality roughages with UMMB is considered to be one of the easiest and effective practices (Perera *et al.*, 2007; Perera and Jayasuriya, 2008). Hard solid blocks of UMMB provide readily available sources of energy and protein in the forms of molasses and urea together with fiber and minerals (Saddul and Boodoo, 2001). Urea-molasses mineral block (UMMB) licks can improve the utilization of low quality roughages because it satisfies the requirements of the rumen microorganisms and creates a better environment for the fermentation of fibrous material which eventually increases the production of microbial protein and volatile fatty acids (Wongnen, 2007). Urea, after hydrolyzing into ammonia in the rumen, provides a nitrogen source for the rumen micro-flora for their microbial protein synthesis. Molasses is a major source of readily fermentable energy, which assists the growth of rumen microorganisms. In addition, it is considered to be a good carrier for urea and a source of micro minerals (Perera *et al.*, 2007; Wongnen, 2007). It has been reported by Perera *et al.* (2007) that the

incorporation of UMMB under field conditions has tremendously improved the animal performance which may be associated with the “supplementary” and “catalytic” effects of UMMB promoting an optimal ammonia level for efficient microbial activity in the rumen (Kunju, 1986). Several researchers have previously reported the use of UMMB licks for supplementing the crop residue-based diets of large and small ruminants (Leng, 1983; Sansoucy, 1995), but only very few studies have been conducted on the use of UMMB with good quality forage-based diets. Results of one such study by Weerasinghe *et al.* (2010) to evaluate the effects of supplementation of nitrogen through UMMB on the performance of dairy cows fed good quality forage based diets, highlighted that UMMB supplementation significantly increased milk yield and yields of milk fat, protein, and solids-non-fat (SNF). Further, UMMB supplemented animals in that study had a significantly higher body weight compared with those fed control diet and the authors suggested that the improvements of production and performance could be due to improved digestibility of UMMB supplemented diet. With this, multi-nutrient block have been found to be highly beneficial and its use as been shown to be practical and effective in overcoming nutritional challenges in sheep, goats and dairy cattle industry (Makkar, 2007).

1.2 Justification

Feed block technology, as an option to be promoted among sheep, goat, and cattle owners in Nigeria. In order to improve animal performance and reduce cost of feeding animal and conserved utilization of agro-industrial by-products in the formulation of suitable feed that consist of different nutrient composition which will improve the growth performance of any animal that consumes it (Shided and Salman, 1996)

These studies therefore, will broadening the scope to determine different macro-nutrients present in the feed block. To know the exact substance classes that will contribute to the energy content of the animal, improved productivity and also to reduce the hazardous effect in production. Multi-nutrient feed block as a technology is also to meet the nutritional requirement of livestock animals in Nigeria.

1.2.1 Broad objective

The objective of this project is to determine proximate and fiber analysis of multi-nutrient feed block made with pineapple pulp and different browse plants.

1.2.2 Specific objectives

To analyze proximate content in the multi-nutrient block and browse plants.

To determine the fiber fraction present in the multi-nutrient block and browse plants.

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