

Arabi lamb's rumen morphological changes in response to different level of treated straw with urea supplement

Hanaa Ali Jabar Al-Galbi¹, Omet Faisal Mohammed Hassan² and Qutaba Jasim Ghani³

¹Animal Production Department, College of Agriculture, University of Basrah, Iraq

²College of Veterinary, University of Basrah, Iraq

³Email: hanaa.jabar@uobasrah.edu.iq

Abstract

The goal of this study was to use histomorphometry evaluation in combination with treated straw with urea in addition to mixed rations to show the ontogenesis of the rumen in Arabi lambs. This study was conducted in the animal field/ College of Agriculture/ University of Basra to show the effect of using straw treated with urea in different proportions on some anatomical characteristics of rumen of Arabi male lambs. In this study, (16) Arabi male lambs with ages ranging between (3-4 months) and average weight of (23.5 kg) were used. Lambs were randomly distributed into four treatments, with four animals for each treatment. The concentrate feed was mainly barley (55%), wheat bran (43%), vitamins and minerals (1%) and salt (1%). Lambs were fed 3% of their live body weight. The first group was fed 100% concentrate feed, the second group 90% concentrate feed + 10% straw treated by urea, the third group 80% concentrate feed + 20% straw treated by urea, and the fourth group: 70% concentrate feed + 30% straw treated by urea. Significantly higher ($P < 0.05$) pH was recorded in all the treated groups after 8 h of feeding. Similarly, the brightness (L*), redness (a*) and yellowness (b*) of rumen was significantly higher ($P < 0.05$) in treated groups. The papillary length, width and surface area of rumen were significantly ($P < 0.05$) high in treated straw supplemented groups. The structural properties of the rumen were enhanced by a diet plan mainly concentrate with the inclusion of treated straw with urea at the level of the indicated procedure.

Keywords: Arabi lamb, rumen, urea supplement

Introduction

Animal welfare, as well as animal production, is influenced by feeding practices (Di Giuseppillo *et al.*, 2003). To meet the growing needs for lean meat in the current days, sheep and goats are fed a diet that may endanger their wellbeing. In many countries, the production of mutton has also transitioned from a conventional approach to a new intense rearing system, in which animals are fed a highly concentrated diet to assure rapid growth. The transition from suckling to weaning is a sensitive time in which young lambs are subjected to a high-energy diet, which can lead to severe complications such as rumen acidosis and abnormal structural and functional development of the rumen wall in lambs (Cavini *et al.*, 2015), putting animal welfare at risk. The development of rumen papillae is substantially dependent on the synthesis of volatile fatty acids (VFAs) in ruminant, particularly butyrate and propionate, which regulate the rumen mucosa in sheep (Mach *et al.*, 2006; Alvarez-Rodriguez *et al.*, 2010; Franco *et al.*, 1992). Small ruminants are classified as transitional