ABSTRACT

This study evaluated the *in-vitro* organic matter digestibility of Rhodes grass hay supplemented with different levels of Chicory- with or without brewer's yeast (*Saccharomyces cerevisiae*). The feeds were formulated into eight diets and offered using a CRD with a (4x2) factorial design. The diets were Rhodes grass hay and chicory supplementation at (T1:0, T2:10, T3:20, and T4:30%) as the main effects and yeast (+) and without yeast (-) as interaction levels. The proximate analysis was done to determine the chemical composition of the ingredients in terms of dry matter (DM), crude protein (CP), ether extract (EE), organic matter (OM), and ash using the AOAC's recommended methods. The *in-vitro organic matter digestibility* was determined using the gas production method for all experimental diets. The data was analyzed by a general linear model of ANOVA using SAS software (version 9.4). T4+ (30% chicory+70% Rhodes grass+ yeast) recorded the lowest NDF, CF, and ADF ($p<0.05$), which explains the increased ME and OMD obtained. It also had the highest CP (109.2 gkg^{-1} DM) and ash (132.9 gkg^{-1} DM). Results from the *in-vitro* degradability indicate that Rhodes grass hay supplemented with 30% chicory and mixed with yeast had the highest gas production and degradability, indicating that the Chicory and yeast combination is suitable for low-quality forages. This study concludes that 30% Chicory mixed with yeast is a potential supplement to Rhodes grass hay to improve the growth of dairy goats.

Keywords: Chicory, goats, proximate analysis, prebiotics, probiotics, Rhodes grass, yeast