

A comparison between water buffalo (Khuzestani) and cow rumen fluids in terms of the *in vitro* digestibility of steam treated sugarcane pith

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The aim of this paper is a comparison between water buffalo of Khuzestan and cow rumen fluids in terms of the *in vitro* digestibility of steam treated sugarcane pith. Many authors have reported that buffalo digest fibrous feeds more efficiently than cattle, particularly with diets which have a high proportion of cellulose. Sugarcane bagasse and pith, the residue after rind removal, are the most abundant by-products in Iran. Buffalo can consume agricultural by-products and lignocellulosic residues. Rumen microorganism of buffalo is further and more varied than the cattle. *In vitro* studies have suggested that 19–28% total cellulase activity can be attributed to protozoa. It is also reported that rumen protozoa cause 25-30% of total rumen microbial fiber digestion. *In vitro* digestibility of dry matter (DM) and neutral detergent fiber (NDF) were measured by procedure of Tilley and Terry (1963). Rumen fluid was obtained from two buffalo and two cows, which were fed 30:70 concentrate: forage. Rumen fluid was extracted with a stomach tube with the use of a vacuum pump before the morning feeding. Data of DM, NDF digestibility were analyzed as a completely randomized design using the general linear model procedure of SAS and data of protozoa enumeration were analyzed according to the one-way classification method. The results indicated that the DM digestibility of steam treated sugarcane pith by total rumen microbial and rumen protozoal population of Khuzestani buffalo was higher than rumen microbial population of cow (51.05, 25.84 and 38.8, 25.22 g/100g, respectively) ($P < 0.05$). NDF digestibility of steam treated sugarcane pith was 49.17, 7.8 and 25.4, 1.69 g/100g for total rumen microbial and protozoal population of buffalo and cow, respectively ($P < 0.05$). Total rumen ciliate protozoal numbers were higher in buffalo than in cow (3.68×10^5 vs 2.18×10^5) ($p > 0.05$). Therefore, *in vitro* activity of total rumen microbial population and rumen protozoa in fiber digestion and total rumen ciliate protozoal numbers of Khuzestan water buffalo under the same diet were higher than the Holstein cow.

Key words: *In vitro* Digestibility, Rumen Buffalo, Rumen protozoa