

## Abstract

This study was conducted to determine the chemical composition and nutritional value of sorghum forage silage with tomato pulp and fibrolytic enzyme. For this purpose, sorghum forage was harvested from Sistan farm and in order to be silaged, it was chopped into 3-4 cm pieces. Then, different levels of the tomato pulp (0, 50, 100, 150 and 200 g) and the enzyme (0 and 3 g) per 1 kg dry matter were added to chopped sorghum forage and stored inside 5 kg plastic buckets and were opened after 45 days. The chemical composition including dry matter (DM), organic matter (OM), crude protein (CP), cell wall (NDF) and cell walls without hemi-cellulose (ADF) were measured using the standard methods (AOAC). Likewise, the digestibility of the organic matter and metabolism energy as well as the degradation of the dry matter were measured using the gas production (*in vitro*) and the nylon bag techniques (*insitu*), respectively.

The results showed that addition of pulp and enzyme leads to a significant difference between the dry matter, organic matter, ash, crude protein, Ether Extract, NDF and ADF compared to control group. Adding tomato pulp increased crude protein, crude fat, and organic matter and on the other hand, it decreased the contents of dry matter, ash, NDF, ADF and pH.

Moreover, adding fibrolytic enzyme decreased the cell wall, ADF cell wall, crude protein, and ether extract, yet it increased dry matter content; however, it had no significant effect on its chemical compounds. In general, tomato pulp and fibrolytic enzyme, both individually and simultaneously, affected the chemical composition. The results of degradation showed that the tomato pulp and fibrolytic enzyme increased in continuously during incubation. In addition, the results of gas production indicated tomato pulp and enzyme could increase the amount of gas production compared to the control group.

**Keywords:** sorghum silage, tomato pulp, fibrolytic enzyme, degradation of dry matter, digestibility



University of Zabol

Graduate school

PA Campus

Department of Animal Science

**The Thesis Submitted for the Degree of Master of Science**

**(In the Field of Animal Nutrition Science)**

**Title:**

**Effect of different levels of tomato wastes and  
enzyme on nutritive value of sorghum silage**

**Supervisor:**

Dr. K. Shojaeian

**Advisors:**

Dr. M. Yousef Elahi

Dr. Gh. Jalilvand

**By:**

M. Hashemzaei

April 2016