Effect of Lactic Acid Bacteria Inoculant on Fermentation Quality of Sweet Sorghum Silage

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Abstract : Sweet sorghum is considered one of the best plants for silage production and is now a more important feed crop in many countries worldwide. It is simple to ensile because of its high water-soluble carbohydrates (WSC) concentration and low buffer capacity. This study investigated the effect of adding Pediococcus acidilactici AZZ5 and Lactobacillus plantarum AZZ4 isolated from elephant grass on the fermentation quality of sweet sorghum silage. One commercial bacteria Lactobacillus Plantarum, Ecosyl MTD/1(C.B.)), and two strains were used as additives Pediococcus acidilactici (AZZ5), Lactobacillus plantarum subsp. Plantarum (AZZ4) at 6 log colony forming units (cfu)/g of fresh sweet sorghum grass in laboratory silos (1000g). After 15, 30, and 60 days, the silos for each treatment were opened. All of the isolated strains enhanced the silage quality of sweet sorghum silage compared to the control, as evidenced by significantly ($P < 0.05$) lower ammonia nitrogen (NH3-N) content and undesirable microbial counts, as well as greater lactic acid (L.A.) contents and lactic acid/acetic acid (LA/AA) ratios. In addition, AZZ4 performed better than all other inoculants during ensiling, as evidenced by a significant ($P < 0.05$) reduction in pH and ammonia-N contents and a significant increase in lactic acid contents.

Keywords : fermentation, lactobacillus plantarum, lactic acid bacteria, pediococcus acidilactic, sweet sorghum
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