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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

COWPEA STOVER AND DISCARDED APPLE MIXTURE ENSILED WITH COMMERCIAL INOCULANT

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In the Mediterranean production systems, agro-industrial co-products, e.g. field residues (stover, straw, leaf and stem), process residues (husk, bagasse and molasse) and industrial residues (peel, pulp and discarded fruit) may represent an important feedstuff as complementary source for feeding animals during periods of forage shortage. Previous work carried out by our research group shows that mixtures of cowpea (*Vigna unguiculata*) stover with discarded apples (*Malus domestica*) can be preserved by the ensiling process. However, the low residual concentrations of water soluble carbohydrates (WSC) in the silages suggest the need to use commercial inoculant to control microbial fermentation in order to improve its nutritional value. The objective of this study was to evaluate the nutritive value, fermentation process, aerobic stability and microbiology after ensilage process of cowpea stover (15%) and discarded apple (85%) with or without commercial inoculant (Sil-All® LV) containing *Lactobacillus* sp., *Pediococcus* sp., *Propianobacterium* sp., and different enzymes. Generally, no differences were observed among silages with or without additive on nutritive value, including WSC, and aerobic stability. Silage with commercial inoculant showed higher ($P<0.0001$) lactic acid (79.9 vs. 55.0 g kg DM^{-1}) and lower ($P<0.0001$) acetic acid (4.4 vs. 12.6 g kg DM^{-1}) and pH (4.0 vs 4.2). No butyric acid was identified in both silages. No differences were observed in microbiological analysis (enterobacteriaceas, lactic acid bacteria, yeast and molds) in both treatments until 288h of air exposure. Results obtained in the present study showed that mixtures of cowpea stover with discarded apples could be conserved by the ensiling process. Although the utilization of commercial inoculant increased lactic acid and decreased pH and acetic acid it was not effective on the preservation of the WSC of the initial mixtures.

Keywords: aerobic stability, *in vitro* digestibility, microbiology, water soluble carbohydrates

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