ENSILING FRUIT PEELS OF PINEAPPLE AND PAPAYA FOR THE UTILIZATION AS AN ANIMAL FEED

K.S.S. Wimalasiri[1], N. Ekanayake[2] and S.C. Somasiri[1]

[1]Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.
[2]Lanaka Canneries (Pvt.) Ltd, Narahenpita Road, Colombo 05, Sri Lanka.

This study was carried out to prepare silage using pineapple and papaya fruit peels available as waste at fruit processing factories. The peels were ensiled either separately or in different combinations including chopped Hybrid Napier (CO-3 *Pennisetum perpureum* × *Pennisetum americarnum)* grass. The experimental design was Completely Randomized Design having ten treatments with two replicates per each. The treatments were, T_1 – 100% Pineapple, T_2 – 100% Papaya, T_3 –100% CO-3, T_4 –75% Pineapple + 25% Papaya, T_5 – 50% Pineapple + 50% Papaya, T_6 – 25% Pineapple + 75% Papaya, T_7 – 20% Pineapple + 70% Papaya + 10% CO-3, T_8 – 30% Pineapple + 50% Papaya + 20% CO-3, T_9 – 70% Pineapple + 20% Papaya + 10% CO-3 and T_{10} – 50% Pineapple + 30% Papaya + 20% CO-3. The fruit peels and grass were sun-dried, chopped and mixed according to different treatments. After 21days, the silos were opened and representative samples were analysed for nutrient content, colour, odour, pH and Ammonium Nitrogen (NH_3N) content. The colours of all the silages were ranged from olive green to orange. All the treatments had a fruity smell. The pH values ranged from 3.41 to 4.04 in all treatments. The highest ($p<0.05$) crude protein (CP) content was in T_3 (14.02 ± 0.39%) and the lowest ($p<0.05$) was observed in T_4 (0.32 ± 0.02%) and T_5 (0.56 ± 0.01%). The highest ($p<0.05$) acid detergent fiber contents were in T_3 (32.76 ± 0.11%), T_8 (32.61 ± 0.03%), and T_{10} (32.42 ± 0.44%) and the lowest ($p<0.05$) was in T_5 (24.23 ± 0.11%) and T_6 (23.77 ± 0.03%). The highest ($p<0.05$) neutral detergent fibre content was in T_9 (44.00 ± 0.02%) and the lowest ($p<0.05$) in T_2 (18.72 ± 0.76%). The NH_3N content was not observed in any of the treatments. The CP contents in T_2, T_4, T_5 and T_6 were below 2%. Thus, the other silage treatments (T_1, T_7, T_8, T_9, and T_{10}) can be selected for further studies with animals to select the best treatment.

Keywords: Colour, Ensiled fruit peels, Nutrient content, Odour, Silage