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The effect of adding epiphytic lactic acid bacteria in agricultural waste based - complete feed silage on fermentation quality

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The objective of the current study was to evaluate the nutritive value and fermentation quality of agricultural waste based-complete feed silage treated with epiphytic lactic acid bacteria (LAB). Total of 4 treatments were (A) king grass 70% + cassava waste 12% + tofu waste 15% + LAB 3%; (B) king grass 50% + crop rice residue 20% + cassava waste 12% + tofu waste 15% + LAB 3% (C) king grass 50% + oil palm frond 20% + cassava waste 12% + tofu waste 15% + LAB; (D) king grass 50% + crop rice residue 10% + oil palm frond 10% + cassava waste 12% + tofu waste 15% + LAB. The liquid of epiphytic lactic acid bacteria was sprayed on the top of silage material with a concentration of 4.0×10^6 cfu/g and then mixed by the hand. About 500 g of silage materials were packed into plastic silos and stored in the room temperature for 30 days. Thereafter, silage samples were taken for proximate analysis and fermentation quality. The results of this study showed

that dry matter and organic matter contents of silage was affected ($P < 0.05$) by addition of epiphytic LAB. Silage C had the highest dry matter and organic matter contents of silage than other silage. There were no significant differences in crude protein and NDF contents among silage treatments with crude protein and NDF values varied from 14.5 to 15.0 and 57.1 to 58.9, respectively. The silage A produces the highest ($P < 0.01$) lactic acid followed by the lowest ($P < 0.01$) pH value compared to other silage. Silages C and D had lower ($P < 0.01$) N-NH₃ concentration compared to silages A and B. The VFA concentration was lower in silage C than silage A. Silage A had the highest fleigh point followed by silages C, D and B. It was concluded that replacement of 20% of grass with oil palm frond in silage C produces quality silage fermentation similar to silage A.

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