Utilization of Azolla (*Azolla pinnata*) and Guinea Grass (*Megathyrsus maximum*) to Produce Silage

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Guinea grass is one of the most abundant and underutilized fodder varieties in Sri Lanka. Azolla is an aquatic fern that is high in protein, therefore, has the potential to be incorporated into grass silages to improve the protein content. This study was conducted to evaluate the nutritional composition and sensory quality of the silage produced using different combinations of Azolla and Guinea Grass. Five different silages were prepared to mix different proportions of Azolla and Guinea Grass: (1) Azolla only (control 1); (2) Guinea grass only (control 2); (3) 25 % of Azolla ,75 % Guinea grass; (4) 50 % of Azolla, 50 % of Guinea grass; and (5) 75 % of Azolla, 25 % of Guinea grass. Silages were analyzed for the crude protein (CP%), crude fibre (CF%), ash (%), ether extract (EE%) and dry matter (DM%). The nutritional composition of all five silages were significantly different ($p<0.05$). CP (18.84%), EE (4.78%), ash (17.52%) and pH (5.33) were higher in the silage produced from 100 % Azolla and these parameters were decreased with the reducing percentage of Azolla in silages. In contrast, crude fibre and organic matter contents were lower in silage produced from 100% Azolla and these parameters were increased with the reduction of Azolla percentage in silage. Color, odor, and texture were best shown in the silage produced using 50% of Guinea grass and 50% Azolla compared to the other silages. Combined all the results suggest that the inclusion of 50% Guinea grass and 50% of Azolla produce the highest quality silage (CP -12.36%, DM – 22.23%, pH – 4.17) compared with the other combinations. A digestibility trial, however, is required to decide the potential use of the Azolla and Guinea grass mixed silages in feeding ruminant animals.

Keywords: Azolla, Guinea grass, Proximate composition, Silage

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