

Effect of Condensed Tannin of Leucaena and Calliandra Leaves in Protein Trash Fish Silage on In vitro Ruminal Fermentation, Microbial Protein Synthesis and Digestibility

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Abstract	<p>Two plants as condensed tannin (CT) sources were supplemented to protein trash fish silage (TFS) to observe their effect on in vitro ruminal fermentation product, microbial protein synthesis, and digestibility. CT supplementation on protein trash fish silage was on control proportion (0), under optimum level (2.0%), at optimum level (4.0%), and above optimum level (6.0%) of g TFS); of protein precipitation of bovine serum albumin (BSA) with CT from <i>L. leucocephala</i>; and under optimum level (1.5%), at optimum level (3.0%) and above optimum level (4.5% of g TFS), BSA protein precipitation with CT from <i>C. calothyrsus</i>. The effect on degradation in ruminal fluid and ruminal fluid followed by incubation in HCl-pepsin was evaluated using a modified two-step in vitro method. The CT level of <i>L. leucocephala</i> and <i>C. calothyrsus</i> was 4% and 6%, respectively with protein precipitation BSA was 26.25 and 31.77 g BSA/g CT, respectively. CT supplementation to trash fish silage, ruminal fermentation product (NH₃-N, C₂, C₃, and total VFAs) and digestibility (DM and OM) decreased ($P < 0.01$) and increased ($P < 0.01$) total CP digestibility (in HCl-pepsin). The difference was attributed to CT source without affecting ruminal microbial protein synthesis. CT of <i>L. leucocephala</i> was better in increasing total protein digestibility (70%) than that of <i>C. calothyrsus</i> (15%). It indicated that CT of <i>C. calothyrsus</i> was less effective in protected TFS protein degradation in rumen compared to that of <i>L. leucocephala</i>.</p>
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