

Processing Waste of Cocoa Fruit Leather and Lamtoro Leaves into Fish Feed by Fermentation Method Using *Aspergillus Niger*

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Abstract. *Leucaena leucocephala* or lamtoro is one of the potential sources of vegetable proteins for fish and livestock feed. lamtoro leaves have a high protein content of about 25%. Cocoa plants are one of the export commodity fruit crops from South Sulawesi Province. Cocoa skin is currently used as one of the alternative ingredients that can be used as raw materials for fish feed. The first stage of working on fish feed products from cocoa fruit skin and lamtoro leaves is the preparation of samples including dried cocoa fruit skin and lamtoro leaves soaked with water for 12 hours and NaOH incubation with varying concentrations (1%, 2%, 3% and 4%), sterilized at 121°C for 15 minutes then continued with a separate fermentation process using *Aspergillus niger* 10% with varying time (1 day, 2 days, 3 days and 4 days). Starter cocoa fruit skin and lamtoro leaves dried and then milled then blended with a ratio (1:1). The results of the mixing in the analysis using a proximate method to determine the nutritional quality of fish feed products. The best concentration of NaOH on the quality of the incubation process of lamtoro leaves was 1% with 20.28% protein content, 12.19% crude fiber, 1.89% fat, 10.71% ash and 38.37% water. The best time to ferment cocoa pods is 1 day with a protein content of 14.65%, 9.95% crude fiber, 11.43% fat, 9.96% ash and 5.71% water. The best time for fermentation of lamtoro leaves is 3 days with a protein content of 30.06%, crude fiber 7.65%. The nutritional quality obtained from the blending of 1:1 cocoa fruit skin and lamtoro leaves is 34% protein content, 7.97% coarse fiber, 7.75% fat content, 6.27% ash content and 8.92% water content and has met the quality requirements of SNI 01-2715-1996 for fish feed.

Keyword: *aspergillus niger*, leucaena leaves, fermentation, fruit leather cocoa.