

Production of silage from fish waste using whey as the inoculum

H.G.P. Sameera^{1*}, K.W.S. Ariyawansa² and B.E.P. Mendis¹

¹*Department of Food Science and Technology, Faculty of Agriculture, University of Peradeniya*

²*National Aquatic Resources Research & Development Agency (NARA), Crow Island, Colombo 15, Sri Lanka*

The fisheries industry plays an important role in the economy of Sri Lanka by providing livelihood mainly for coastal communities. In 2015, the total fish production was recorded as 520,190 Metric tons. During fish processing, a large amount of wastes are produced and fish waste management has become one of the problems having the greatest impact on the environment. One potential way of minimizing these problems is its transformation into a product to be incorporated as an ingredient in animal rations. Fish silage which frequently added into animal feed is a liquid or semi-solid product made from whole fish or parts of fish that are liquefied by the action of enzymes in the fish in the presence of an added acid. This study was carried out to produce fish silage from fish waste through a biological process involving microbial fermentation. The whole experiment concentrated on developing an ensilation formula and determining a time frame to get a physically (consisting good odour, colour, texture and uniformity), biologically (no any harmful microorganisms in considerable level), and nutritionally (containing higher protein content) better quality final product, where whey uses as the lactic acid bacterial inoculum and molasses as the fermentable carbohydrate source. The combination of 6% of whey, 15% of molasses and 79% of fish viscera waste was the best formula and 5 day time period was selected as the best fermentation period. The results of the analysis of proximate composition indicated 14.52 ± 0.05 % of protein content in the final silage product and the respective nitrogen amount is appropriate to be used as a supplement for animal feed production.

Keywords: fermentation, fisheries sector, fish silage

*Corresponding author – email : pathumhgps@gmail.com