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Proximate composition analysis of trash fish from the selected landing sites of Jaffna district, Sri Lanka

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Abstract

Marine coastal fishery often yields a considerable portion of the non-target species and by-catch as trash fish in total catch. Generally, it consists of edible and inedible fish species, which are unacceptable for human consumption usually discarded as waste. However, it has significant potential to use as animal feed. The current study was intended to determine the proximate composition of abundant trash fish in selected landing sites of Jaffna peninsula from November 2018 to March 2019. Crude protein, fat, ash and moisture content were analyzed in trash fish samples. Eight dominant trash fish species such as *Trichiurus lepturus*, *Carangoides talamparoides*, *Arius caelatus*, *Hilsa kelee*, *Pellona ditchela*, *Dussumieria acuta*, *Aurigequula fasciata*, and *Leiognathus splendens* were subjected to proximate analysis. Among the selected trash fish species *Carangoides talamparoides* has highest protein value (18.68%), *Hilsa kelee* consisted highest fat content (12.62%), Ash value (2.33%) is highest in *Aurigequula fasciata* and moisture content (80.32%) was high in *Arius caelatus*. The present study revealed the rich nutritive values of the locally available resources that were presently being wasted, has the potential to use as a nutrient ingredient for artificial feed formulation in livestock farming. It could be concluded that the converting of trash fish into wealth (livestock feed) as an opportunity of adding value to the fish by-product.

Keywords: Crude protein, fat, proximate composition, trash fish

1. Introduction

Fishery plays a major role as a source of income and livelihood activity for many people in Sri Lanka. Coastal fishery still contributing a major portion around 49% to total fish production of the country. National Gross Domestic Production (GDP) contribution at a constant price, in 2017 was 1.3% (Ministry of Fisheries and Aquatic Resources Development, 2018) [12]. Contribution of Jaffna fishery was a considerable proportion in the national fishery production of Sri Lanka, which was about 10% in 2017 (National Aquatic Resources Research and Development Agency, 2017) [13].

The term Trash fish explains the variety of non-economical important fish species caught in fisheries. This includes the collection of uneatable low-value marine fishes and juveniles of commercial value fishes, which were usually discarded as waste. Although the overall global bycatch situation is not well understood. It occupies a considerable portion about 40.4% of global marine catches, exposing systemic gaps in fisheries policy and management (Davies RWD, *et al* 2009) [5]. According to the United Nations agency (FAO, 2010), the world trend has been shifted toward better utilization of non-commercial discarded element of bycatch and trash fish.

Many Asian countries struggle to manage their trash fish production to balance social and economic benefit associated with different patterns of harvesting and use. Sadly, trash fishes were not often considered as a resource. The nutritional values of these discarded trash fishes were not properly understood very well. Hence, understanding the nutritional value of trash fishes are very important. These trash fish could be used as a vital supplement for the fulfilment of the nutritional requirement in livestock feeds. The direct input of trash fishes or incorporation in artificial feed was considered a better alternative.

There is concern that in the future the rapid expansion of aquaculture may be constrained by increasing dependence on low-value marine "trash fish" and fish meal.