

**EFFECT OF *Sargassum wightii* INCORPORATED**

**FEED ON GROWTH AND IMMUNITY**

**ENHANCEMENT OF ASIAN SEA BASS**

**(*Lates calcarifer*)**

A dissertation submitted to the

Faculty of Animal Science and Export Agriculture

Uva Wellassa University

in partial fulfillment of the requirement of

the degree of

Bachelor of Science in Aquatic Resources Technology

by

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**Aquatic Resources Technology Degree Programme**

**Faculty of Animal Science and Export Agriculture**

**Uva Wellassa University**

**2014**

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## Abstract

Sea bass (*Lates calcarifer*) is one of the highly valued seafood throughout the world. Sea bass culture has been identified as a promising investment opportunity in the marine aquaculture sector in Sri Lanka due to high export demand. The bacterial infections can cause huge losses in Sea bass culture and among all disease causing bacteria in Asian sea bass *Aeromonas hydrophila* are ubiquitous bacteria which are found in a variety of aquatic environments worldwide. Inclusion of bioactive compounds present in seaweeds in to fish diets can enhance the fish growth and immunity combating the bacterial diseases. Therefore, this study was conducted with the objectives of development of immunity enhancing, cheap feed type for Asian Sea bass using *Sargassum wightii* and to compare the growth parameters according to the given feed type. A feed trial was conducted using four treatments which include commercial feed and formulated feed without seaweed as control diets and formulated feeds with 20g/kg and 40g/kg of *Sargassum wightii* incorporated feeds with three replicates per each treatment. The effect of these test and control diets on growth performance were evaluated on Asian sea bass stocked with 15 advanced fingerlings per tanks for a period of 40 days. The fish survival rate during the feed trial and cost of formulated feed were calculated. After the feed trial, nine fishes from each treatment were artificially challenged with 150 ppm dose of *A. hydrophila* and observed for 7 days. There is a significant higher difference in weight gain in commercial feed compared to other three treatments ( $P < 0.05$ ), while there is no significant difference in FCR and SGR among all experimental diets ( $P > 0.05$ ). The artificial challenge with *A. hydrophila* showed 11.11% disease prevalence in *Lates calcarifer* fed 20g/kg of seaweed incorporated feed. The highest disease prevalence of 100% was recorded in without seaweed feed. Approximately Rs. 180.00 of cost was aspired for the formulated feed while commercial feed is having a cost of Rs. 250.00. This study revealed that there is an acceptable level of weight gain with seaweed incorporated feed and no significant difference in FCR and SGR between seaweed incorporated feed with two control feeds. The highest level of immunity enhancement was reported from 20g/kg seaweeds incorporated feed. This is a low cost and immunity enhancing feed type and this will be useful in developing Sea bass culture in Sri Lanka.