



# First assessment of the proximate, amino acid and mineral composition of sargassum from the Atlantic Ocean coast in the Benin Republic for fish feeding purposes

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## ABSTRACT:

**Objectives:** Tropical and subtropical coastal countries experience seaweeds inundations including sargassum, leading to environmental and economic challenges. This study aimed at assessing, for the first time, the nutritive value of sargassum collected from the Atlantic Ocean coast of Benin to analyse its potential to be valorised in fish feeding.

**Methodology and Results:** *Sargassum fluitans* and *Sargassum natans* mixture, collected along the beach of Cotonou was analysed to assess the proximal composition (moisture, ash, fat, and crude protein), the essential amino acids (EAA) and the minerals content based on standard AOAC International methods. The results revealed that the mixture of *Sargassum* contained all the ten EAA, although it displayed a slightly low protein content (6.1% Dry weight). Moreover, quite low fat content (0.3% Dry weight) was recorded. Furthermore, five minerals, required for fish growth and survival, were found, including three macrominerals (Ca, Mg, and P) and two microminerals (Zn and P).

**Conclusions and Application of results :** The *Sargassum* mixture, from the coast of Benin, displayed an interesting content made of amino acids and minerals required for fish as well as fat probably including essential polyunsaturated fatty acids. This seaweed can therefore be collected, processed in meal and used as a fish feed ingredient especially to substitute fish meal for significantly lowering fish feeding costs. The quantity of *Sargassum* required to make the fish feed will depend on the requirement of the targeted fish species to feed and the combination of the different ingredients to use for formulating the feed. Here, we just highlight, due to the content in protein and especially the EAA of *Sargassum*, the possibility to replace the common but expensive protein source of fish feed, which is fish meal, to help low fish feeding cost. Hence, this can help

manage the environmental challenges coming from the sargassum strandings, contribute significantly to strengthen food security and increase the blue economy.

**Keywords:** Seaweeds, Marine resources, Aquaculture, Food security.