

Seaweed: An Option for Mariculture Expansion in the Coastal Region of Bangladesh

Asst. Prof. Md. Masud Rana



The Oceans are the most essential resources on the planet. The total maritime area of Bangladesh is approximately 1,18,813 square kilometres which is about 80% of our total land area. Seaweeds are one of the most commercially important non-conventional fisheries of this vast ocean. The diverse and large group of organisms that develop in the marine environments to convert minerals and carbon-di-oxide to biomass photosynthetically by using energy provided by the sun are known as seaweed. Seaweeds are one type of autotrophic organism which grows through the photosynthesis process as plants do. Macroalgae and microalgae are two primary forms of seaweed; microalgae differ from macroalgae by their morphology, pigments, cell wall, reserve substances, and cellular division characteristics. Macroalgae can be divided into red, green and brown algae-

based on primary pigments. It is a type of marine vegetable with medicinal properties; it is possible to strengthen the wheels of the country's finances by



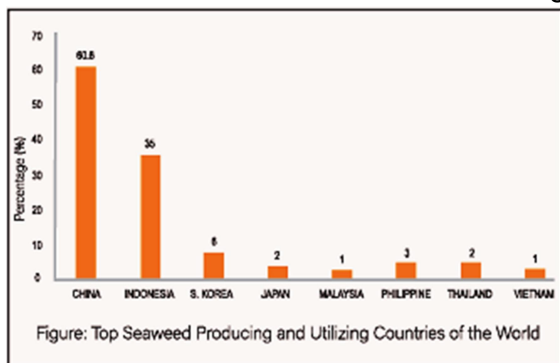
Seaweed, A-Green, B-Red



earning a large amount of foreign exchange by exporting these algae.

A total of 221 species of seaweeds having commercial importance are found in

South-East Asia, of which 110 are fit for consumption. St. Martin's surroundings and coastal areas of Bangladesh are suitable for cultivating these algae. So far, 215 species of seaweeds of 102 groups have been found along the coast of St. Martin's. Bangladesh Fisheries Research Institute (BFRI), in their study, confirmed the presence of 116 species of seaweeds in coastal areas, among them *Caulerpa racemose*, *Enteromorpha* sp., *Gelidiella tenuissima*, *G. pusillum*, *Hypnea pannosa* are commercially important. Around the world, food patterns are constantly changing; new items are being added to the menu, and as a result, the demand for seaweed is increasing among tourists. The demand and trend for seaweed and seaweed-based food is also increasing



day by day in the tourist areas of Bangladesh, including five-star hotels-motels, Cox's Bazar and Kuakata.

Seaweed has a considerable demand in the global market, amounting to 16 million metric tons/year. China alone produces 55-58% of its current demand. Like any other country in the world, Bangladesh has a vast potential for cultivating this green asset. Bangladesh Fisheries Research Institute (BFRI), Bangladesh Agricultural Research Institute (BARI), WorldFish and Food and Agriculture Organization (FAO) are working extensively on the production, processing, and marketing of seaweed. As many climate threats are arising, options should be opened for more income-generating

options with economic sustainability. Researchers have shown that the weather in the sub-coastal region of Bangladesh is very suitable for seaweed cultivation. Seaweed is the best produced *Hypnea* sp. In Bangladesh and has the potential to cultivate *Eucheuma* sp. These are used to prepare carrageenan, widely used in the food processing industry. In today's world, marine algae are one of the most important aquatic resources that contain edible protein, carbohydrates, minerals, and fats, like other plants. Studies have shown that marine algae contain high protein, fibre, vitamins (A, D, K, E), calcium and potassium, which are essential and vital ingredients for the human body.

Besides, seaweed contains high-quality amino acids and is a good source of unsaturated fatty acids. Scientists say that this vegetable is an effective antidote to heart disease, diabetes, high blood pressure, and iodine-related gallstone diseases, which also play a role in lowering cholesterol in the blood. Due to its high nutritional value, it has been used directly as salads, spices, vegetables, etc. in developed countries. Since seaweed is full of nutrients, it can be used to produce different types of products. Seaweed soups, pizzas, noodles, biscuits, bleach and pickles are some of the most edible products prepared from seaweed. From seaweed, carrageenan, agar powder, essential medicines, preservative food additives, toothpaste, various types of cosmetics and cloth colors can be prepared. Likewise, in different countries of the world, paper, cloth, gel, emulsifier, glue, packet coating, glaze of ceramics, skin polishing material and alginate are made from seaweed. Seaweed is widely used as an organic fertilizer and as a binder for fish and animal feed. Since there are different types of bioactive ingredients present in seaweed, it is considered to be a high-quality

functional food, It is possible to earn a virtuous currency by making various value-added products using seaweed and exporting them abroad to meet our nutritional needs. Already seaweed-based various value-added products in coastal areas have gained massive popularity in the local market.



China, Japan, Korea and other seaweed producing countries mainly follow the long line or rope, floating rack, hanging net, permanent and temporary rack system for seaweed cultivation. A temperature of 25-30°C, solid rocky bottom, saline semi-transparent water, and suitable water circulation are very important for growing seaweed that meets with our marine environment. Cultivating seaweed as seriously as any other crop can make it a highly profitable crop because it is a fast-growing plant, and the cost of production is very low. Seaweed farming does not require fertilizer, insecticides or soil preparation like any other crop and it does not require a very skilled person. The biggest thing is that it is not possible to grow any vegetable in the hidden water of the sea if there is a crop to be done there, then it is a pleasing thing. The average cost of seaweed production per square

meter is BDT 200-250 and the price of the produced crop is BDT 700-800. The price of seaweed is BDT 1500-2000 per 40 kg in raw condition and BDT 3500-4000 in dry condition. Due to the high salinity in the coastal areas, it is impossible to cultivate other crops, so economic revolution is possible by cultivating these green algae at a low cost. Seaweed cultivation has excellent potential in the 710 km coastal areas of Bangladesh; in these areas, if the seaweed cultivation is intensified, it is possible to make good use of our coastal water as well as to achieve foreign currency after meeting the nutritional demand of our country. Expanding seaweed cultivation, processing and marketing in Bangladesh will create employment opportunities for a large population in the coastal area and play a vital role in alleviating poverty.

In order to expand the cultivation of this potential plant and make this unconventional fishery resource profitable, we have to face many challenges. If the government of Bangladesh prepares some policies to increase the cultivation and utilization of this resource, it will be easier to solve the challenges. Apart from this, if various entrepreneurs and traders of the fisheries sector take the initiative to make seaweed processing industries for valuable natural sources of food, cosmetics and various medicines, then it will be a new step for further enriching the economy of Bangladesh.

Writer: Asst. Prof Md. Masud Rana is the Chairman, Department of Fishing and Post Harvest Technology, Sher-e-Bangla Agricultural University.