



Extraction and total production price determination of sodium alginate from brown seaweed *Sargassum illicifolium* of Chabahar bay- Sistan and Baluchistan province, IRAN

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Abstract:

A huge resources of brown seaweed *Sargassum illicifolium* is in coastal boarder of Sistan and Baluchistan province which a sample was harvested from Oman Sea-IRAN, during autumn season, 2019 for analyzing minerals, vitamins, macro nutrients, essential amino and fatty acids, ash content and sodium alginate yield. Seaweed cleaned and rinsed after harvesting, dried under sun light, chopped and cut into small pieces and some powdered by grounder to measurement crude protein, lipid, and carbohydrates using standard methods. Alginate was extracted from chopped and cut seaweed chemically, using 0.5% formalin for 2 hours, rinsed with fresh water then placed in 0.2 N sulfuric acid for 5 hours, rinsed again to obtain pH 7, and using carbonate sodium for 6 hours, then was filtered. After adding ethylic alcohol, the viscous mixture was separated from its residue by centrifuging at 14,000×g. So paste form sediment which has been dried to produce clod form, was powdered by blender to obtain sodium alginate and finally total production cost was estimated. Results revealed that this Chabahar bay seaweed has 9.1±1.15 percentage total protein (TP), 2.1±0.28 percent total lipid (TL), 33.2±4.08 %, carbohydrate, 41.4% sodium alginate with molecular weight, Mw, of 8.06×10⁵ g mol⁻¹. During this procedure, total production price was calculated for one kg sodium alginate extracted from amount of wet Sargasso seaweed.

Keywords: Sodium alginate, Brown seaweed, purification, proximate composition, Chabahar, IRAN.