

Red algal farming in Chile: a review

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Abstract

Production of seaweeds in Chile has fluctuated between 74,000 and 322,000 wet metric tons/year during the last 14 years, involving different species of Phaeophyta and Rhodophyta. Among Rhodophyta, the most important harvested species include the carrageenophytes *Sarcothalia crispata*, *Mazzaella laminarioides*, *Gigartina skottsbergii*, *Chondracanthus chamissoi*, and the agarophytes *Gracilaria chilensis* and *Gelidium lingulatum*. Other less important taxa are *Gel. rex*, *M. membranacea*, *Ahnfeltia plicata*, *Ahnfeltiopsis furcellata*, *Porphyra columbina*, *Callophyllis variegata*, *Mastocarpus papillatus* and *Chondrus canaliculatus*.

Chilean production comes mainly from wild stocks, as at present, cultivation on a commercial scale is restricted to *Gra. chilensis*. Total landings of *Gracilaria* currently stand at 120,000 wet tons. Large-scale cultivated biomass of this species, on the other hand, has been the result of a sharp increase in the number of farms, from less than 10 in 1982 to almost 322 in 1996. A basic understanding of key biological and ecophysiological aspects, as well as the availability of propagation methods, permitted the development of large-scale *Gracilaria* farming operations. However, during the cultivation process, new problems arose for the farmers, such as abrupt production decline, pests and pathogens.

Similar key knowledge is lacking for other Chilean Rhodophyta, which creates a bottleneck that prevents the development of seaweed farming activities other than *Gracilaria*. This situation prevails in spite of the growing pressure on wild stocks triggered by an increase in the demand for raw material by the industry, with the obvious danger of over-exploitation and the resulting collapse of fisheries. Taking the above into consideration, an effort has been made in recent years to provide the basic knowledge necessary for the management and cultivation of some of the most valuable seaweed resources in Chile. Thus, the main objective of this contribution is to summarize the present situation of red seaweed cultivation in the country. We will address this issue by reviewing the landing statistics of these resources, followed by a summary of recent information that favours cultivation. These include propagation methods, culture conditions and techniques, product quality, pest management, strain selection and the diversification of seaweeds currently exploited in Chile.