

**GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH
LOK SABHA
UNSTARRED QUESTION NO. 5196
(ANSWERED ON 02.04.2025)**

SEAWEED CULTIVATION

5196. Shri Bhartruhari Mahtab:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) the Council of Scientific & Industrial Research (CSIR's) contributions in enhancing seaweed cultivation in the country; and**
- (b) the current status of seaweed processing and extraction technology developed by CSIR?**

ANSWER

**MINISTER OF STATE (INDEPENDENT CHARGE) FOR THE
MINISTRY OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES**

(DR. JITENDRA SINGH)

(a) The cultivation of seaweeds and processing them into value-added products are nationally important areas pursued by Council of Scientific and Industrial Research (CSIR) through its constituent laboratory namely, CSIR-Central Salt and Marine Chemicals Research Institute (CSIR-CSMCRI), Bhavnagar.

In this context, the key challenges currently addressed through R&D are developing and providing quality germplasm including stress tolerant variants, developing new cultivation protocols, enabling the availability of seed material, identifying locations conducive for cultivation at PAN India scale. The significant work carried out is as under:

- A methodology for elite germplasm has been developed for *Kappaphycus alvarezii* for commercial exploitation. 7500 elite germlings have been distributed to commercial farmers. A pilot-scale seed production of *Kappaphycus alvarezii* for promoting extensive farming along the Tamil Nadu coast has been undertaken, wherein the production of 275 tons of fresh seed has so far been made and distributed to several hundred farmers for multiplication.**
- Clonal propagation of *Gracilaria dura* (G. dura) and *Kappaphycus alvarezii* through imparting appropriate treatment of various growth-promoting substances has been developed. Based on the work of clonal propagation of *G. dura*, the first state-of-the-art facility in Public-**

Private Partnership (PPP) mode has come up jointly with M/s. Indian Centre for Climate and Societal Impacts Research, Mandavi, under a Technology Information, Forecasting and Assessment Council (TIFAC)-supported project. About 25,000 seedlings of G. dura are out-planted and provided to fishermen of Gujarat, who have produced 500 kg germplasm for commercial farming.

- **Pan-India pre-feasibility of seaweed farming is being carried out in mission mode at CSIR. Projects have also been supported by the Department of Fisheries, Government of India under Pradhan Mantri Matsya Sampada Yojana (PMMSY). A total of 269 sites were surveyed in all coastal states, including island territories Andaman and Nicobar Islands and Lakshadweep. Of these, over 86 sites were found to be suitable for undertaking pre-feasibility, and among them, 62 sites were found to be conducive to undertaking commercial seaweed farming.**

(b) The current status of seaweed processing and extraction technologies developed by CSIR-CSMCRI is at Annexure-I.

S.No.	Technology Knowhow	Current status
1	Integrated process for the simultaneous recovery of liquid fertilizer (sap) and carrageenan (semi-refined & refined) from fresh <i>Kappaphycus alvarezii</i> (USP No 6,893,479	Technology know how transferred to three industries and products are commercialized
2	Production of Sap from <i>Kappaphycus alvarezii</i> and its application.	Technology knowhow transferred to Nine industries and products by few companies are commercialized
3	Process for preparation of agar from Indian <i>Gracilaria</i> spp.	Technology knowhow transferred to one NGO
4	An improved process for the extraction of agarose polymer from seaweed extractive.	Technology knowhow transferred to one industry.
5	Preparation of refined kappa carrageenan from <i>Kappaphycus alvarezii</i> via semi refined kappa carrageenan	Technology knowhow transferred to two industries
6	Production of Liquid seaweed plant biostimulants from <i>Sargassum</i> spp.	Technology know how transferred to eleven industries and products by few companies are commercialized.
7	Zero Liquid Discharge Process for the production of alginic acid and its derivatives from alginophytes.	Technology knowhow transferred to one industry
8	<i>Kappaphycus alvarezii</i> and Red Seaweed Based Formulations for Improving Productivity and Health of Dairy and Poultry Animals.	Technology knowhow transferred to one industry
9	<i>Kappaphycus alvarezii</i> elite seedling production through micropropagation of tissue cultured plants	Technology developed
10	Process of production of seedlings in agarose yielding red seaweed <i>Gracilaria dura</i> for commercial exploitation	Technology developed
11	An integrated process to recover a spectrum of bioproducts from fresh seaweeds	Technology developed