

### 3. New/ Innovative Technologies in Fisheries

#### 3.1 Anti-obesity Nutraceutical developed from Seaweeds by ICAR-CMFRI, Kochi, Kerala

An anti-obesity nutraceutical has been developed from seaweeds by scientists at Central Marine Fisheries Research Institute (ICAR-CMFRI), Kochi, Kerala. The product, named Cadalmin™ Antihypercholesterolemic extract (*Cadalmin™ ACe*), is a natural remedy for obesity and dyslipidemia. Seaweeds (macro algae) are known to contain bioactive compounds that possess medicinal properties. The above said product was extracted from seaweeds inhabiting the coastal waters of India. According to Dr Kajal Chakraborty, Senior Scientist in Marine Biotechnology Division of ICAR-CMFRI, who developed the product, the bioactive pharmacophore leads from seaweeds were used to prepare the nutraceutical product.

*Cadalmin™ ACe* can be administered to regulate clinical indicators leading to obesity: triglycerides, good (HDL) and bad (LDL) cholesterol, visceral fat, total adipose tissue and dyslipidemia. The product contains 100% natural marine bioactive ingredients obtained from selected seaweeds by a patented technology, and would be made available in 400 mg capsules. The nutraceutical does not have any side effects as established by detailed pre-clinical trials. According to Dr P Vijayagopal, Head, Marine Biotechnology Division, ICAR-CMFRI, active ingredients in the product will be packed in plant-based capsules to meet the dietary needs of the large vegetarian population in India and abroad.

Large scale extraction of the active principles from the raw material was optimized in a factory unit. The total yield of the active principles from the raw material was found to be greater than 20%, which demonstrated the commercial feasibility of the nutraceutical product. The product is being licensed to a pharmaceutical company for commercial production.

Shri Justice P. Sathasivam, Hon'ble Governor of Kerala, released the product during the inaugural ceremony of the Platinum Jubilee Celebrations of the ICAR-CMFRI at its Headquarters in Kochi on 18<sup>th</sup> February 2017.

*Cadalmin™* Antihypercholesterolemic extract is the fourth in the series of the nutraceutical products developed by the ICAR-CMFRI. Two anti-arthritic and one anti-diabetic



*Cadalmin™* Antihypercholesterolemic extract, an anti-obesity nutraceutical product from seaweeds, developed by ICAR-CMFRI, Kochi, Kerala

nutraceutical products are the other products developed by the institute in the past. All these technologies have been commercialized through pharmaceutical companies.

[Source: <http://www.cmfri.org.in/patents.html>;  
ICAR-Central Marine Fisheries Research Institute,  
Kochi, Kerala]

#### 3.2 Hybrid Solar-Wind Powered Chilling Chamber and Dehydrator developed and installed at Fishing Harbour in Machilipatnam, Krishna district, Andhra Pradesh

With funding received under the 'Central Sector Scheme on Blue Revolution: Integrated Development and Management of Fisheries', from Dept. of Animal Husbandry, Dairying & Fisheries (DADF), Ministry of