1. Development investigation concerning operation of life cycle and other of Gagome

The life cycle of Gagome was clarified and the growth of Gagome resource was attempted with the seaweed bed reef and the net system in the sea. Moreover, the land-based cultivation technology of Gagome, extraction technology of viscous polysaccharide such as fucoidan, the land-based cultivation system of Gagome was produced experimentally, and the cultivation technology of blade and the consecutive extraction technology of mucilaginous polysaccharides were developed.

In addition, biological information concerning Gagome was collected for publication.

2. Development investigation concerning formation of high value and integrity securing of squid

Development investigation of the following four sub themes were done at aim to make the high value and effective use of squid’s resource.

1) In the development investigation of quality retention technology for squid, squid’s super-high freshness transportation technology as live fish or frozen fish was developed.

2) In the development investigation concerning high-quality dried squid by using bacterial growth controlling, an innovative technology for the production of high quality dried squid was effectively developed.

3) In the development investigation concerning rapid bacterial detection analyzer based on bioinformatics and genetic information, rapid specific bacterial detection analyzer applied fluorescence in situ hybridization method was developed.

4) In the development investigation concerning separation and purification of squid ink particle, the technology of the squid ink particle separation and purification with diameter of submicron was developed.

The main study results

1. Developmental study of mariculture and reproductive technologies of Gagome

The manculture and reproduction of Gagome was executed by setting up the kelp beds and the net systems around coasts of Hakodate, and it was confirmed that Gagome grew up to about 2m in the net systems by the half a year.

2. Developmental study of land-based cultivation technologies of Gagome (Kjellmaniella Crassifolia Miyabe)

The land-based cultivation system of Gagome was produced experimentally and the cultivation technology of blade and the consecutive extraction technology of mucilaginous polysaccharides were developed.

3. New high value products from Gacome materials in Hakodate

New products: Beauty and skin soap (Gagome kelp soap), healthy and dietary supplement (Kumemura) with a content of kelp polysaccharide, skin conditioner (Aquast) etc.

4. Development of transportation technology for live fish and fresh squid

The sealed pack transportation examination of live squid was done, and succeeded to be living up to 50 hours. Moreover, the transportation technology for fresh fish as living tissue was developed.

5. Development of a test dryer for evaluating the high-quality dried squid manufacturing

The specified procedure derived by controlling temperature, drying air humidity, and drying air flow rate was developed, which is an efficient manufactured technology for producing a high quality dried squid. Based on the technology, an evaluation-aided test dryer was also developed.

6. Development of Fluorescence in situ hybridization (FISH) following cultivation was developed

FISH following cultivation method was developed for squid specific detection of viable bacteria, and the method could be applied to various species.

7. Development of separation purification technology of squid ink pigment particles

The technology that was efficient separation, and purifications of the global squid ink pigment particles of monodisperse with about 0.3 microns was developed.