

Application of marine algae for the formulation and development of new food products with high nutritional value

Summary

Profile type	Company's country	POD reference
Technology offer	Spain	TOES20230630026
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement Investment agreement	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

A Spanish University research group has developed and patented new food products formulated with marine algae: seaweed mousse and Sherry vinegar flavored with estuary algae. These products have been widely accepted by different groups of consumers, proving good marketing possibilities. The researchers are looking for companies interested in the exploitation of the patents through a license agreement or a joint venture, as well as technical or research cooperation for further developments.

Full description

A Spanish University research group with expertise on valorization of agroindustrial waste and algal biomass to obtain high-value added products, has developed and patented new food products applications of marine algae. Marine algae offer great nutritional richness and are considered a key product in the search for new nutritional sources for human consumption. In addition, the growing demand for healthy, natural and sustainable foods has promoted culinary interest in marine algae in recent years, and even a new trend known as "phycogastronomy" has recently emerged. In Spain, however, despite its rich coastline, seaweed is not a regular part of the diet and, therefore, not of the gastronomy. However, in recent years, interest in these marine products for direct consumption or as an ingredient in the development of new products has increased. In Andalusia, and specifically in the Bay of Cadiz, macroalgae such as *Ulva* spp. or *Gracilaria* spp. are being developed in places such as earthen ponds, areas belonging to former salt mines and, therefore, with environmental characteristics conditioned by the salt production

system. Earthen ponds algae are, therefore, marine resources that are highly nutritionally rich and contribute, due to their composition, to a healthy, Mediterranean-type diet.

In order to promote consumption of algae, in general, and the native ones of the estuaries of the Bay of Cadiz in particular, the fresh algae mousse from the earthen pond has been devised: mousse of green algae, red algae and coupage. Said mousse uses as main ingredient the species of algae *Ulva* sp. (sea lettuce), *Gracilaria* sp. (ogonori) from the earthen pond of the Bahía de Cadiz Natural Park and a mixture of both in different proportions depending on the case. As complementary ingredients, extra virgin olive oil, wheat flour, low-fat cream, flower of salt and soy lecithin are used as a natural emulsifiers. The main advantage of these products is that, under their different designs, they present very particular sensory characteristics, from the intense marine flavor provided by *Ulva* sp., to the minerality of *Gracilaria* sp. which, together with the mousse texture, offers a product that is easy to consume both on its own and accompanied by breadsticks, snacks, etc. or even as gastronomic accompaniment in the form of sauces, etc.

The product is patented with prior examination and is the first patented product with earthen pond algae.

Another seaweed product that has been patented by the group is Sherry vinegar dressing flavoured with earthen pond algae. The aim was to develop a product combining a traditional product and a new product from the province of Cadiz. This product combines the acidity, freshness, freshness and aromatic and taste power of sherry vinegar with the marine and mineral notes of seaweed, which makes it ideal for a multitude of culinary applications. The dressing is obtained by macerating earthen pond algae of the genus *Ulva* or *Gracilaria* (2-3%) in sherry vinegar "reserve" category (97-98%). It is macerated for a specified time. The product is filtered before its packaging.

The use of seaweed as an additive in the production process improves the nutritional and health qualities of the dressing, integrating it as a product within the characteristic patterns of the Mediterranean diet. There is currently no product registered as a dressing or condiment formulated with sherry vinegar and seaweed as an additive. The basic raw materials used in the production of this product are: 'reserva' sherry vinegar aged for at least two years in oak casks. 2 years of ageing in oak casks and freeze-dried seaweed (green and red).

Advantages and innovations

These inventions generate new and innovative products, very different from those already on the market. They are currently of high sensory quality, carefully prepared and easy to consume, and are innovative not only because of the raw material used (seaweed from the Bay of Cadiz pond) and its ingredients, but also due to the type of preparation used to obtain the desired mousse texture or the delicacy of a traditional dressing with innovative marine notes.

Furthermore, ingredients such as olive oil and "fleur de sel" have been used for the mousse, highlighting the natural and healthy character of these products and, with the same objective in mind, no additives or preservatives are used. At the same time, the different types of mousse and their presentation offer consumers a wide range of possibilities to choose from according to their preferences.

Seaweed mousse as a product opens up a new way of using marine resources, and at the same time offers a small gift from the sea in terms of taste and texture.

In the case of the Sherry vinegar dressing flavoured with seaweed, it allows the fusion of a traditional product such as Sherry vinegar and a new and particular product provided by seaweed, which makes it unique.

The main advantage in the market is that these are two innovative products, without direct competition, as seaweed is not yet as integrated in our society as it is in the East, and it is a natural resource that we have on our coasts that deserves to be known and exploited.

With these new products, we aim to open up new paths in the world of cuisine and guide the public to try natural and organic foods from our environment so that they can enjoy these "vegetables from the sea".

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

- **Goal 12: Responsible Consumption and Production**
- **Goal 2: Zero Hunger**
- **Goal 9: Industry, Innovation and Infrastructure**

Partner Sought

Expected role of the partner

The scientific area to which the invention corresponds is the area of food technology, and the industrial sector in which it can be applied is the agri-food sector, and more specifically, in the companies dedicated to the collection and transformation of algae or companies dedicated to the transformation and commercialization of marine products in general.

These products are ready to be launched on the market.

The researchers are looking for companies interested in the exploitation of the patents through a license agreement or a joint venture, as well as technical or research cooperation agreements for further developments.

Type of partnership

Research and development cooperation agreement
Investment agreement

Type and size of the partner

- **SME <=10**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **008003 - Nutrition and Health**
- **08001004 - Food Processing**
- **08001005 - Food Technology**

Targeted countries

- **World**

Market keywords

- **07003002 - Health food**
- **007003005 - General food products**

Sector groups involved

- **Agri-Food**

Media

PDF documents



[TO_profile_algae_products.pdf](#)

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