

## **RESEARCH TOWARDS THE FIRST 100% BIODEGRADABLE MULTILAYER AND BARRIER PACKAGING**

*NIPPON GOHSEI (Japan), PLASTIENVASE (SP GROUP) (Spain), a food manufacturer Fast Moving Consumer Goods Company (Spain) and AINIA CENTRO TECNOLÓGICO (Spain) are working on a joint research project which aims to develop the first packaging for processed meat products made with multilayer materials and gas barrier, entirely biodegradable and compostable. The project, which will last two years, is under the scope of the **Japan & Spain Innovation Program**, a line of collaboration between CDTI-Spain and their namesake NEDO in Japan to boost R&DI initiatives between both countries.*

The need for more sustainable packages requires advanced research and leading technological development involving international collaboration. This collaboration is essential to find innovative and comprehensive solutions that minimize environmental impacts keeping the features and advances in active packaging.

The project BIOBARACTIVE-JSIP has been conceived following this philosophy, and so, it unifies the technological and innovation efforts of the Japanese multinational **NIPPON GOHSEI**, the manufacturer of packaging materials **PLASTIENVASE (SP Group)**, a **Spanish Food Manufacturer Company** and **AINIA-Technological Center**.

The international research team set up in the consortium aims an ambitious goal:

**Develop the first active barrier multilayer package entirely biodegradable and compostable, capable of increasing the shelf life of perishable foods above the current 30 days.**

**Starting point: a biodegradable and compostable material with excellent barrier properties**

The project starts from an innovative material, **Nichigo G-Polymer™**, a biopolymer developed by NIPPON GOHSEI that combines excellent barrier properties to gases with biodegradability and compost-ability.

During the project, this biopolymer material will be transformed into packaging material. To this end, the structures and properties will be defined and all the selected elements (multilayer barrier, Top Lid, Trays), should be biodegradable and compostable.

The prototype package to be developed consists of a lid film and a thermoformable bottom, responding both to the needs and specifications of food safety and shelf life of perishable foods.

Meanwhile, PLASTIENVASE (SP GROUP) will extrude a 7 layer blown film multilayer structure with Nichigo G-Polymer™ provided by NIPPON GOHSEI. The result will be a biodegradable and compostable high barrier flexible packaging. Later, by extrusion coating process, this film will be laminated to a rigid PLA sheet intended to be thermoformed in a tray.

From its own point of view, the food manufacturer contributes with its knowledge about the requirements for the distribution and consumers. The novel materials resulting from the

BIOBARACTIVE-JSIP project will be evaluated with perishable foods, thus becoming an applied R&D that can provide a differential advantage to all partners.

AINIA Technology Centre provides expertise to the consortium in adjustment of packaging materials to food requirements, machinery, and storage conditions and, also, regarding the incorporation of antimicrobial substances to the package with active functions on foods.

**The challenge: extended shelf-life with entirely sustainable packaging.**

The project responds to the growing demands of society and different stakeholders to advance the development of entirely sustainable packaging. In the area of food packaging, the main difficulty is that many packages are made of multilayer materials in which each layer has a specific function (structural, barrier, sealing, adhesives and ink) and the complication is that all these components must be environmentally friendly, including the barrier material. This project is focused in this direction, and also on increasing shelf life of packaged food by means of active substances to be placed in the package.