

# PROJECT

## Strengthening R+D+i capacity for producing natural ingredients from residual biomass



Since 23 April 2018, Corporación Biotec, Universidad del Valle, Gobernación del Valle, and a group of enterprises and entities related to agriculture, agro-industry, and bioindustry have been jointly implementing the project **“Strengthening R+D+i capacity for producing natural ingredients from residual biomass, Palmira, Valle del Cauca, Western Colombia,”** funded by the General System of Royalties.

### PROBLEM STATEMENT

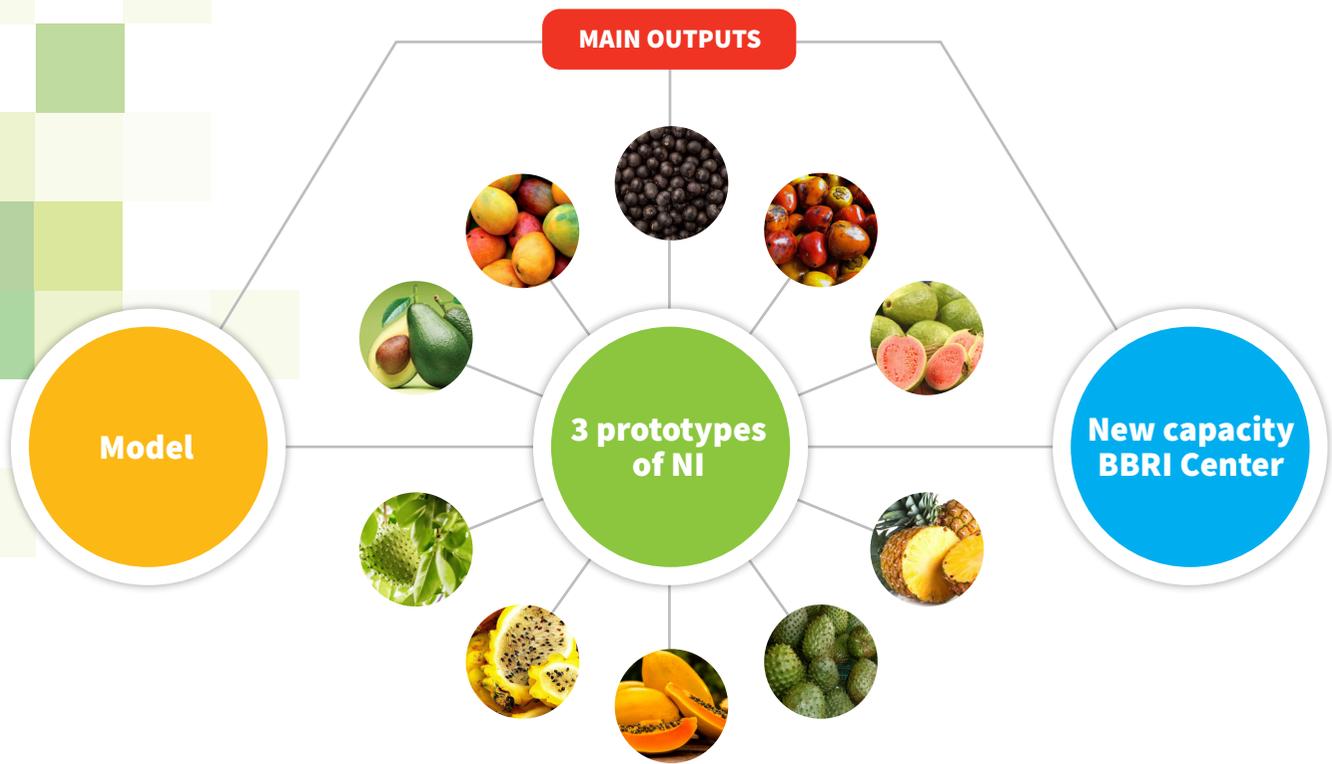
The Valle del Cauca Department does not take advantage nor promotes the potential of its agro-industrial resources, such as the resulting residual biomass, and does not make the most of its research and innovation capacity to offer a supply of local natural ingredients (NI) with world-class, innovative, differentiating attributes, with the volume, quality, and standards necessary to sustainably contribute to leveraging the competitiveness of the production chains for the cosmetics and cleaning, food, nutrition and public health sectors in national and international markets.

### PROJECT OBJECTIVE

Strengthen and consolidate the research and innovation capacity and use of agro-industrial resources to promote and offer a supply of natural ingredients (NI) with world-class, innovative, differentiating attributes, from residual biomass in the Valle del Cauca Department.

### SPECIFIC OBJECTIVES/COMPONENTS

1. Characterize the supply of residual biomass in Valle del Cauca with opportunities for use and applications in NI.
2. Develop and apply an inclusive, sustainable, competitive, and scalable model for producing NI with world-class, innovative, differentiating attributes, from residual biomass in Valle del Cauca and its application to three prototypes of new NI.
3. Increase the related technical-scientific capacity.



- A **scalable model** for producing natural ingredients with world-class, innovative, differentiating attributes, from residual biomass found in agrobiodiversity available in Valle del Cauca.
- Three **prototypes** of natural ingredients.
- Regional promotion of a long-term **strategic line of research, innovation and investment, and tapping** of local natural ingredients. Foundations laid for a Bioscience and Bioindustry Research and Innovation Center (BBRI Center).

### NATURAL INGREDIENTS PRIORITIZED FOR PROTOTYPING



#### Soursoy leaf acetogenin-rich standardized extract

**Soursoy** (*Annona muricata* L.) is a tree of the Annonaceae family, whose leaves are evergreen. The extract of soursoy leaves is one of the natural ingredients prioritized by the Project because those leaves are agricultural residual biomass abundant from the local production chain. Complementarily, as per latest reports, the fruit tree has been found to produce 212 bioactive secondary metabolites. The predominant compounds are molecules of the Acetogenin family, followed by alkaloids, phenols, and other compounds. In those reports, leaves and seeds were the most studied organs of the plant, probably because they are traditionally the most used.



#### Pineapple peel essential oil

**Pineapple** (*Ananas comosus*) is a perennial plant of the Bromeliaceae family. Its fruit is a syncarp or infructescence. Pineapple peel essential oil is one of the natural ingredients prioritized by the Project because the peels are agro-industrial residual biomass abundant from the local production chain in Valle del Cauca. Complementarily, the oil is attributed with cosmetic properties such as skin emollient agent and eutrophication modulator, hair cuticle sealer, and an aromatic profile of good sensory acceptability.



#### Peach palm pulp and peel powder

**Peach palm** (*Bactris gasipaes*) belongs to the Arecaceae family. Its fruit is an ovoid-shaped drupe. It has been cultivated and consumed in Colombia as a highly nutritious food. Peach palm pulp and peel powder is one of the natural ingredients prioritized by the Project because it is a promising crop in the Colombian Pacific region. Complementarily, it is rich in macro- and micro-nutrients and oligo-elements. It has a high concentration of beta-carotene, a precursor of vitamin A. Due to its nutritional contribution, using peach palm powder can be an alternative for enriching the diets of the Colombian population, particularly in the Pacific region.