THE OBTAINMENT PROCESS AND USE OF BIOCONJUGATED MOLECULES WITH BIOLOGICAL AND TECHNO-FUNCTIONAL ACTIVITIES	
Offering Organization:	Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C. y Kurago Biotek Holdings, S.A.P.I de C.V
Type of Organization:	Public Research Center
Development Stage:	Commercial Concept Tests
Desired Relationship:	– Technological research and development financing (technological partner) – Specialized application tests – Creation of a new company (Joint Venture) for the commercialization of the products outlined herein – Licensing of patents
Sector:	Industrial
Area of knowledge:	Biotechnology
Key words:	Bioconjugate molecule, bioconjugation, prebiotic nutraceuticals, anti-inflammatory, antitumor, techno-functional ingredient

DETAILED DESCRIPTION:

Problem to be solved:

Carbohydrate fatty acid esters (SFAE, "Sugar Fatty Esters") are chemically classified as non-ionic surfactants which contain a carbohydrate unit with a hydrophilic head with one or more fatty acids as lipophilic components; these have interesting biological and techno-functional properties. The main properties of these bioconjugate molecules are their biodegradability and non-toxicity, along with their ability to be produced from natural renewable energy sources. They are therefore frequently used as surfactants and emulsifiers in the pharmaceutical, cosmetic and food industries.

Solution:

This invention relates to the bioconjugation of molecules between two or more of the following groups: prebiotics, triglycerides, fatty acids, sugars, oligosaccharides, polysaccharides, fatty acid esters, and anti-inflammatories. It also includes the obtainment process by means of biocatalyzed synthesis using hydrolases such as esterase, protease-lipase or cutinase and the purification process using various methods including washing and drying.

New and Innovative Aspects:

- The optimization of the following factors: solvent, enzyme and support.
- Enzymatic esterification using branched fructans such as those from tequila agave.
- The use of oils, esters and/or omega-3 fatty acids as acylating sugars to form bioconjugates.
- The purification process.

TECHNICAL CHARACTERISTICS:

The process of synthesis of a mixture of bioconjugated molecules, also denoted herein as "bioconjugation", is comprised of the following steps :

- Synthesis reaction
- Filteration
- Recovery of bioconjugates from the "organic phase "
- Recovery of bioconjugates from the "solid phase"

- Drying (optional)
- Purification

Main advantages derived from its utilization:

- This invention has many different uses in foods, drugs and cosmetics: as a prebiotic nutraceutical, an anti-inflammatory, an antitumor, an intestinal vector, a techno-functional ingredient for food (emulsifier, fat substitute) and as a cosmetic emollient.

Applications:

- Food, pharmaceuticals and cosmetics

INTELLECTUAL PROPERTY

- Patent submitted in 2013
- MX/a/2013/015020

ABOUT THE OFFERING ORGANIZATION

Presentation:	El Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C. (CIATEJ) is a public research center that belongs to the national technology development and innovation network, the National Council for Science and Technology (CONACyT). CIATEJ is focused on the agricultural, food, health, and environmental sectors with an emphasis on the application of innovative biotechnology.
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