

BIODEGRADABLE PLASTIC MADE FROM TEQUILA AGAVE BY BIOSOLUTIONS IN MEXICO

BioSolutions is a company founded in 2010 in Mexico, which has developed its own, patented technology to produce durable bioplastic compounds based on natural fibers rich in cellulose.

It currently transforms fibers from agave bagasse, considered waste from the tequila and honey industry, into materials to manufacture products such as: films, plastic bags, injected parts and blown containers, among others.

BioSolutions compounds serve as a sustainable alternative to traditional plastics, offering the same performance while reducing the carbon footprint of the products and the companies that consume them. Agave fiber serves as reinforcement in bioplastic products, providing good properties to the product and reducing its weight, while replacing part of the plastic with renewable sources..

PolyAgave, the Biosolutions compound, represents bioplastic composites of agave fiber for different applications in the plastics industry. The biomass used is the agroindustrial byproduct resulting from the production of Tequila and Agave Honey in Mexico.

The use of these bioplastic compounds brings the following environmental benefits:

- Reduces the carbon footprint on the planet
- Reuse agave biomass (agroindustrial byproduct) instead of food sources
- Reduces consumption of petroleum polymers
- Reduces greenhouse gas emissions
- Produces 100% recyclable and reusable materials
- Promotes the consumption of national materials (zero km)
- Bioplastic with the lowest water footprint on the market
- Does not compete with land to grow food.

Incorporating bioplastic compounds into products and packaging also brings important benefits for companies that establish collaborations with Biosolutions for their use, in particular they allow:

- Innovate and differentiate their products and packaging compared to competing companies.
- Be included in a market that consumes and looks for environmentally friendly products.
- Offer products and packaging with excellent mechanical properties and reducing weight per piece



- Allows you to apply for ESR® awards and certifications - Implementation of the Blue and Circular Economy in the company.

The BioSolutions website [presents 40 success stories of companies that are already innovating](#) with examples of different products made with bioplastics in collaboration with BioSolutions. [An example is the Mexican company, Penka®](#), creator of the first biodegradable straw made with agave fiber. The use of PolyAgave® in its products promotes resource optimization, since it uses more than 3000 kg of byproducts from agave distillation; prevents the emission of 450 kg of carbon dioxide into the environment. Likewise, it promotes the consumption of environmentally friendly products, product innovation and differentiation and greater health well-being, since they are BPA-free products. They are also 100% recyclable products and have the PNK badge as a certified biobased.

[The World Intellectual Property Organization has published on its website a long and detailed article](#) that presents the history of the company BioSolutions, as an example of an important innovation carried out by a company determined to contribute to the challenges of sustainability by investing in circular economy.

The article tells that the company BioSolutions has been created by the entrepreneur Ana Laborde in the course of her Business Innovation studies at the [Monterrey Institute of Technology and Higher Education](#), where she had focused her interest in the production of bioplastics, to contribute to the great international challenge. to look for alternatives to the use of traditional plastics. In this framework, looking for biodegradable alternatives to plastic bags, he discovered that the Tequila production industry, leader of Mexico's economy, is a very important producer of agricultural waste that is not used. In particular, from his studies it turned out that, according to the Tequila Regulatory Council, for each liter of tequila produced, twelve liters of organic waste is discarded. Considering the vast amounts of unused agave leaves, approximately 400,000 tons each year, created during the liquor's production, she considered that if plant fibers could be easily extracted from agave leaves, this unwanted by-product might be an untapped source of bioplastic. Also considering that many of the common sources of bioplastics, such as corn and potatoes, might better be used as food, She developed a business plan and assembled a research team of chemical engineers from her university. Her objective was to develop a process to extract cellulose, the molecule that gives plants their structural integrity, from agave leaves. The extracted cellulose could then be used to make biodegradable plastic bags, containers and cleaning supplies. With technical assistance from Mexico's [Center for the Investigation of Applied Chemistry](#), the team successfully developed this process. Realizing that this innovation was new to Mexico, Ana decided to request a patent.

While developing her project, Ana won first prize in a green entrepreneurship contest co-organized by her university. The prize money allowed to pay for the services provided by Center for the Investigation of Applied Chemistry as well as other project expenses, being a fundamental element in its success, marking its first major milestone in 2010 with the creation of the company, , [BioSolutions](#), to capitalize on the innovation of bioplastic products.

Other awards soon followed. In 2012, BioSolutions was ranked as one of Mexico's 10 most innovative companies by MIT's Technology Review Magazine. That same year, Ana was awarded first place in the University of Texas' annual Business Plan



Competition and third place in an SME competition run by BizBarcelona. Ana herself was celebrated as an innovator by the Discovery Channel and the popular science magazine *Quo*. Encouraged by this recognition and support, BioSolutions applied for grants from the [Fondo de Innovación Tecnológica of CONACYT](#), a public trust designed to support small companies, to allow to expand BioSolutions and establish a pilot production plant in 2012.

BioSolutions continues to expand its bioplastic production activities and to establish alliances with companies interested in taking advantage of its products.

BioSolutions is also very committed to creating new demand from Mexican consumers, to encourage them to choose products that respond to new environmental challenges for a sustainable future.

To know more

[BioSolutions website](#)

[BioSolutions - Beneficios](#)

[Casos de éxito de empresas que ya están innovando](#)

[BioSolutions in Facebook](#)

[Article in wipo.int](#)

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[Article in pt-mexico.com](#)

[Article in dorsetbiosolutions.com](#)

