
Brazil Already Produces Leading Startups in Nanotechnology

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NanoScoping is one of the examples of companies that are emerging in the sector and contributing to sustainable agriculture.

As an agronomist graduated from Unesp Jaboticabal (SP) and with 25 years of experience in agribusiness, especially in the crop protection and plant biotechnology industry, it is not today that I have heard about the potential of nanotechnology for agriculture. According to the Nanotechnology Products Database, there are more than nine thousand products based on nanotechnology available on the market, today and only 231 have use associated with agribusiness.

From smart coatings for seed treatment; passing through nano capsules for controlled release of agrochemicals, biological products and fertilizers; not to mention antibacterial coatings for fruits, the applications form a considerable list that can still be broadly expanded.

Anyway, in [Brazil](#), we have an exponent in the sector, which I see as a source of pride. Deepening my contact with innovation hubs and with the nanotechnology aspect for the agribusiness, what a pleasant surprise I had to meet the Brazilian startup NanoScoping. Created in 2014, it is headquartered at the Business Center in the Alfa Technological Park, in Florianópolis (SC), and operates in the development of nano technological inputs for the veterinary, agricultural, human and animal nutrition sectors, in addition to natural disinfectants and cosmetic.



Specifically in agribusiness, the startup adopts the nano encapsulation of natural products to increase the effectiveness of the application of products in plants and animals. The goal is to provide greater protection against natural enemies, greater residual effect and to have safer ingredients at hand and fully sustainable technology. For all these reasons, I believe that the space for growth of this market is gigantic in agriculture, although data are lacking in this regard. Regarding human health care, to give you an idea, it is projected that the use of nanotechnology will cover a market of US \$ 310 million by the end of 2025.

Precisely because it reduces losses due to volatilization and degradation, the nano encapsulation technology is so fascinating and helps to reduce the number of applications and make the handling of materials simpler. It is also worth remembering that the reduced size of the nanoparticles allows for a greater covering of the plant or animal surface and provides greater uniformity of action to the active principle. In the case of the gradual release of the assets, this is possible because the nanostructured system adheres better to the leaves of plants and to the hair of animals, resulting in a more prolonged effect of the products.



State-of-the-art technology

In the case of [NanoScoping](#), the inputs that most call my attention are those developed from vegetable oils encapsulated in biodegradable nanoparticles, which were grouped in a line that they call Nano Agro. The nanometric size of the particles, of approximately 200 nanometers, allows a better distribution and penetration of the active ingredients in the vegetable surface and the greater spread ability of the products further enhances its insecticidal, fungicidal and bactericidal activity. We are talking about the present and technologies that are at hand for the Brazilian producer.

In the focus of Nanoscoping, there is also a green technology that can be used in conventional, agroecological and organic certified systems. In this case, the products are obtained from biocompatible and biodegradable raw materials that use water as a vehicle to

be absorbed. This means that they dispense with the use of organic solvents and the generation of polluting residues for the environment, another advantage of nanotechnology.

In the hope that this market develops, I could not fail to mention that NanoScoping was one of the 10 startups selected in the [Brazil](#)-London 2020/2021 Incubation Program. Its solutions - focusing on three areas of exponential growth, that are natural solutions, biological products and nanotechnology - were considered of particular relevance for addressing one or more Sustainable Development Goals (SDGs) of the United Nations (UN).

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