

## OBTAINING OF TIGER NUT STARCH FOR THE PRODUCTION OF BIO PLASTICS

### DESCRIPTION OF THE INVENTION

In 2005, Spain consumed almost five tons of plastic. Every year, tons of plastics and non-biodegradable materials are thrown into our environment, where they remain for years and decades as a useless, inert residue.

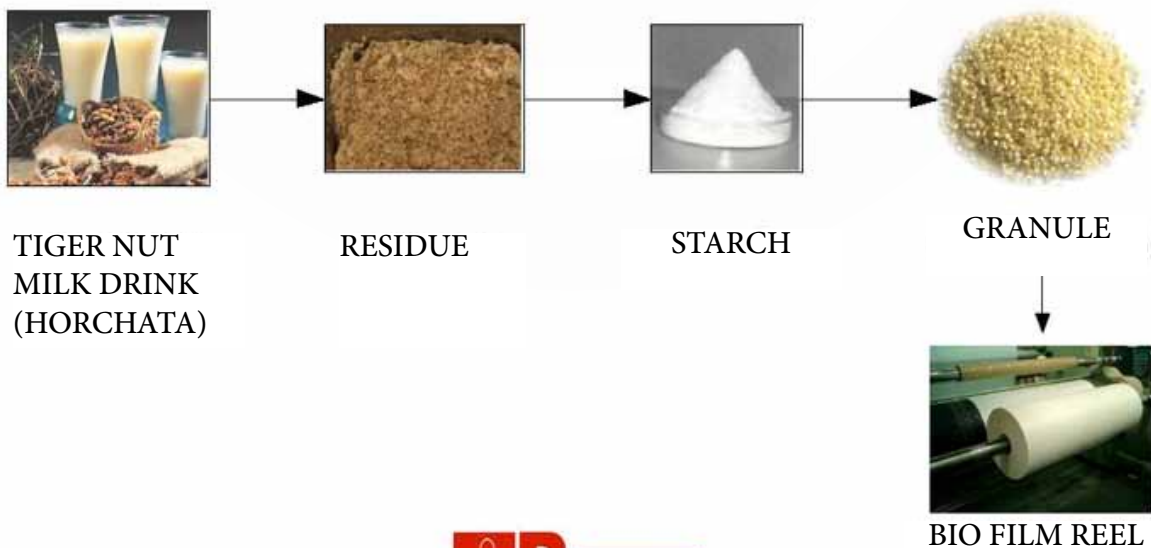
Research centres are working on a “green” alternative to this type of pollution: bioplastics, materials made of vegetables. Among these bioplastics, starch is at the base of the thermoplastic materials that have been marketed during the last few years and prevail in the bio-based and compostable materials market. Besides, starch prices can compete with those of petroleum.

Researchers at Miguel Hernández University of Elche have developed a process to obtain starch from tiger nut and from other sub products derived from the production of a tiger nut milk drink known as horchata, which reaches a basic pH value that remains stable for the rest of the procedure.

When this tiger nut milk drink is produced, all the sub products created in the process are usually thrown away. However, they can be used for extracting starch to be employed in the food, pharmaceutical, textile, mining and chemical industry (e.g. in adhesives and bioplastics production).

UMH researchers have also patented a method for producing bioplastics by mixing tiger nut starch with plasticizers, as well as the use of thermomechanical treatments.

### OBTAINING OF TIGER NUT STARCH AND BIO FILM PRODUCTION



## OBTAINING OF TIGER NUT STARCH FOR THE PRODUCTION OF BIO PLASTICS

### BUSINESS FIELDS OF APPLICATION

This technology can be used in the food, pharmaceutical and cosmetics sectors, as well as in the chemical and bioplastics industry. Potential markets and clients are both national and international.

Specific applications of the technology in the abovementioned sectors would be in the fields of Health (resistant starch), Materials (bioplastics), Chemical Industry (biopolymers) and Food Industry (prebiotics).

### TECHNICAL AND BUSINESS ADVANTAGES

Tiger nut contains 22 to 30% of starch (twice the amount in potatoes), which makes it an interest source of raw materials for the food industry and the bioplastics sector.

By using the sub products obtained in the production of tiger nut, it is possible to skip several stages necessary to obtain starch from potatoes and yam. And in the end, this means saving on energy, water, time and money.

Furthermore, all the industrial properties of tiger nut starch remain unaltered after the extraction process.

The development of the invention also showed that performance in starch extraction is maximized for basic pH values.

### DEVELOPMENT STAGE OF THE TECHNOLOGY

The technology is currently at pilot plant level. Starch samples with different characteristics and technological properties are available, as well as a series of products made from starch (biodegradable films).

### INTELLECTUAL PROPERTY RIGHTS

The invention was granted national patent P201230883 one June 7, 2012. Internationally extended via PCT.

### TYPE OF COLLABORATION SEEKED

Industrial partners that can approach the project from an industrial point of view, develop and exploit the technology. Partners may be bioplastics research and production companies or chemical companies with an environmental line of business.

Collaboration may consist on a proof of concept of the technology, followed by a technology licence.

### CONTACT

Begoña García  
Oficina de Transferencia de Resultados de Investigación  
UNIVERSIDAD MIGUEL HERNANDEZ  
E-Mail: [otri@umh.es](mailto:otri@umh.es)