

## Sicilian and Chinese researchers develop new biocompatible plastics for agricultural use

Rome – Thanks to a recent agreement between the Science and Technology Park of Sicily (STPS) and the Chinese Institute of Bast Fiber Crops (IBFC), some innovative products are being developed for agricultural use. The idea is that to create new plastics by means of a mix between the natural fibers produced by IBFC, such as cotton, hemp and linen, and the biodegradable polyester PHA, which is produced by STPS.

PHA (Polyhydroxyalkanoate) is a natural thermoplastic polymer which is created by a wide variety of bacteria. Depending on the substrates which feed them, bacteria can produce polymers with different chemical properties. All PHAs are completely biodegradable and biocompatible, so they can effectively answer the demand for environmental safe products.

According to the STPS researchers Giovanni Lamagna and Filippo Salemi: "The products we are creating will join together the resistance of the Chinese fibers with the impermeability of our PHA polymer. We are also studying some mix between PHA and recycled paper, in order to lower the production costs down to 3 euro per kg."



*A PHA film*



*Natural fiber mixed with PHA*

Antonino Càtara, chairman of STPS, adds: "The more interesting innovation in our polymer is the method – now patented – and the substrate we have chosen to create it. We have used a selected form of the bacterium *Pseudomonas corrugata*, a pathogenic agent of tomatoes, on a substrate of worn-out oils. This has allowed us to produce PHA from a very cheap source, transforming it from a waste to a resource. I am sure this solution will be able to attract a great interest from both the European and the Chinese market." The European consumption of biopolymers, which amounted 25.000 MT in 2001, is expected to grow up to 1 mln MT in 2010 and up to 5 mln MT in 2020.



*Sicilian and Chinese researchers. In the middle: Prof. Càtara. Second on the left: Giovanni Lamagna. First on the right: Filippo Salemi*