



For Immediate Release
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DNFI Innovation in Natural Fibres Award 2020

Dr. Nouredine Abidi Wins 2020 Award:

“Production of bioplastic films from low-quality cotton fibers”

Dr. Nouredine Abidi, Professor and Director, Fiber and Biopolymer Research Institute (FBRI), Texas Tech University, has won the 2020 Discover Natural Fibres Initiative Innovation Award.

Dr. Abidi has developed a process to produce a plastic substitute from cotton by dissolving the fibres to form a gel which can be transformed into bioproducts, including plastic films.

One patent has been awarded, which focuses on 3D printing from cellulose gel (US 10,311,993 B2). Two provisional patents are pending which focus on the dissolution of cotton cellulose in ionic liquids and conversion to bioplastic films and other bioproducts.

Cotton fibres are approximately 99% cellulose, and cellulose-derived bioplastics are inherently biodegradable in landfills and composting facilities. Testing shows that when cotton cellulose bioplastic films are buried in soil, decomposition begins in about 3 weeks. However, when these bioplastic films are kept in normal household conditions, they remain stable with no sign of degradation. Therefore, products made from bioplastic film would have properties similar to those of plastics currently in common use.

Several commercial applications are envisioned, including shopping bags, soil covering in agriculture, bioplastic packaging, and other single-use items. This technology can be developed as an inexpensive alternative to petroleum-based plastics currently available on the market, providing a solution to plastic accumulation in the environment. Unlike starch-bioplastics, cotton cellulose has no food value and could create a new niche-market for low-quality cotton fibers.

Dr. Abidi is the Leidigh endowed Professor in the Department of Plant and Soil Science and Director of the Fiber and Biopolymer Research Institute at Texas Tech University. He holds a “Habilitation à Diriger les Recherches” from the University of Haute Alsace in France and a Ph.D. from the University of Montpellier II in France. He is a member of the American Chemical Society, the Fiber Society, the ASTM International, the American Association of Textile Chemists and Colorists, and the American Association for the Advancement of Science.

Contact information:

Dr. Nouredine Abidi
Professor and Director, Fiber and Biopolymer Research Institute, Texas Tech University
1001 East Loop 289, Lubbock, TX 79403
nouredine.abidi@ttu.edu

About DNFI

The Discover Natural Fibres Initiative ([DNFI](http://www.dnfi.org)) was created in January 2010 as an outgrowth of the International Year of Natural Fibres 2009, declared by the United Nations General Assembly. The purposes of DNFI are to advance the interests of all natural fibre industries and to encourage increased use of natural fibres in the world economy. DNFI is a voluntary association of individuals and organizations with interests in promoting natural fibres through collaboration, consultation and cooperation. The Organization (www.dnfi.org) works to further the interests of natural fibres by serving as a platform for information exchange, by providing statistics on fibre production and use, and by working to raise awareness of the benefits of natural fibre industries to the world economy, environment and consumers.

Contact:

Elke Hortmeyer

Chair

DNFI

hortmeyer@baumwollboerse.de

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