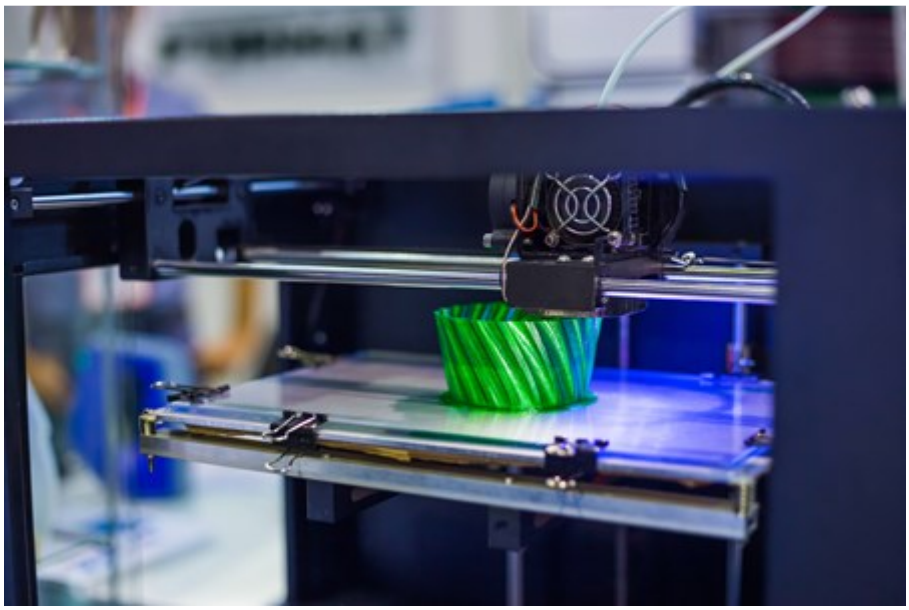
BioBoost
Accelerating biobased horticulture

By-products used in 3D printed bioplastics



Crop	Miscellaneous -
Application area	Materials
Status	Research stage
Relevant plant compounds	Cellulose fibres Starch

Description

The BARBARA project, supported by the EU's Bio-Based Industries Joint Undertaking, is developing novel bioplastics from extracts of vegetal residues for use in fused-filament fabrication (FFF), a versatile and widespread 3D printing technology. By enabling multifunctional biomaterials to replace filaments of fossil-derived thermoplastics in manufacturing, the research will not only reduce reliance on fossil fuels, cut carbon emissions and minimise landfill waste but can also stimulate entirely new circular-economy industries.

'Agri-food residues and by-products, not only from crop harvesting but also from the processing and production of commercial food, are a major issue. EU countries produce around 110 million tonnes of animal and vegetal waste each year, while globally 33 to 50% of all food produced is never eaten. To address these challenges, the traditional approach to food production and processing needs to undergo a fundamental transformation,' says BARBARA coordinator Berta Gonzalvo Bas at AITIIP Centro Tecnológico in Spain.

Part of the solution envisioned by the BARBARA team is to use these renewable but until now unwanted agri-food resources in the preparation of advanced polymer materials for demanding engineering applications, substituting and improving upon unsustainable fossil-based plastics. Whereas most commercial bioplastics in use today, such as plastic bags or other small single-use items, have poor mechanical and thermal properties, the BARBARA researchers are targeting far more robust and high-value applications.

https://www.bbi-europe.eu/projects/barbara

Pros and cons

- Circular economy
- Residuals utilised to make a new product

- New product on a very competing market

Resources

https://www.barbaraproject.eu/ Initiative website