Upcycling Food Waste into Sustainable Bioplastics

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Next Generation Manufacturing Canada (NGen), the industry-led organization behind Canada's Advanced Manufacturing Supercluster, has announced $6 million in collaborative funding for a project, led by Genecis Bioindustries Inc., to develop, scale, and integrate a novel biotechnology platform to upcycle food waste into premium sustainable bioplastics.

Genecis, in partnership with StormFisher, a developer and operator of organic waste and clean energy solutions, will integrate a demonstration-scale technology unit with an anaerobic digestion (AD) plant to convert organic waste feedstock into high-value PHA (polyhydroxyalkanoates) bioplastics, the world's best alternative to petroleum plastics. Genecis' platform leverages existing infrastructure to upcycle waste into high value materials and chemicals, contributing to a circular and bio-based economy. The first product line of PHA resins will serve as plastic replacements for packaging, agricultural plastics, medical plastics, and additive manufacturing filaments. The demonstration project will occur at the StormFisher Resource Recovery Centre in Drumbo, Ontario designed to recycle discarded packaged food and municipal green bin waste.

Producing large quantities of high performance PHAs from these streams will create immense economic and environmental value for both the organic waste and plastic industries. Commercialization of the technology will cement Canada's position as a technology leader in biomanufacturing while reinforcing Canada's commitment to long-term environmental sustainability.

"Projects such as this demonstrate that Canadian businesses can develop innovative and ground-breaking technologies if they have access to the proper support and resources," said the Honourable François-Philippe Champagne, Minister of Innovation, Science and Industry. "This investment allows our country's businesses to capitalize on Canada's strengths in the manufacturing sector and develop innovative solutions to environmental problems, which will have a positive impact across the country and around the world."

"This project highlights NGen's focus on transformative advanced manufacturing solutions," said Jayson Myers, CEO, NGen. "The Genecis project uses advanced manufacturing technologies to fundamentally transform an existing process, providing Canadian manufacturers with access to high value materials, creating a competitive advantage in the green economy, and developing a waste solution that addresses a global environmental issue."

“NGen’s financial commitment to our consortium demonstrates the immense impact our technology can have at-scale in the advanced manufacturing sector,” said Luna Yu, CEO, Genecis. “Our carbon conversion platform will produce materials of the future domestically, create highly skilled local jobs, and accelerate the world's transition towards a circular economy. Our vision of producing sustainable materials from organic waste is made possible through the support of organizations such as NGen. We are thrilled to have the backing of NGen and their team of industry experts as we push the boundaries of biotechnology to create transformational impact.”

"StormFisher is delighted to partner with Genecis to implement this ground-breaking technology,” said Brandon Moffat, Owner & VP, StormFisher. “Upcycling food & organic waste to provide valuable products like RNG and now PHA resins demonstrates the importance and effectiveness of circular projects like these. We have partnered with earlier stage cleantech companies like Genecis in the past and have found it very rewarding for us. As cleantech entrepreneurs ourselves, we had historically found that it can be very challenging finding an industrial partner to allow for companies to scale so we’re glad that we can facilitate this demonstration project.”

This project is funded by NGen under Canada’s Innovation Supercluster Initiative. To date, NGen has approved 105 projects with 242 industry partners, investing $181.2 million of Supercluster funding and leveraging $437.5 million in total project investment. NGen investments have led to $32 million in new R&D investments by industry, created 15 new companies, supported 63 new products in development and enabled the creation of 177 new IP assets and subsequent licensing opportunities for NGen members.

About NGen - Next Generation Manufacturing Canada

NGen is the industry-led not-for-profit organization that leads Canada’s Advanced Manufacturing Supercluster. Its mandate is to help build world-leading advanced manufacturing capabilities in Canada for the benefit of Canadians. NGen works to strengthen collaboration among its membership of more than 3,800 manufacturers, technology companies, innovation centres, and researchers, and provides funding and business support to industry-led initiatives that aim to develop, apply, or scale-up transformative manufacturing solutions in Canada for commercialization in global markets.

About Genecis Bioindustries

Genecis is a high growth Canadian biotechnology company developing microbes and a fermentation process to upcycle organic waste into high-value materials, such as bioplastics. They are a graduate of the Y Combinator incubator program in Silicon Valley and have won multiple international awards including 1st place in the 2020 Extreme Tech Challenge.

About StormFisher

StormFisher is an industry-leading developer and operator of organic waste processing facilities that produce renewable natural gas through a process called anaerobic digestion (AD). StormFisher operates multiple commercial sites in Canada and was recently named the 2021 Project of the Year by the Canadian Biogas Association. Visit stormfisher.com for more information.