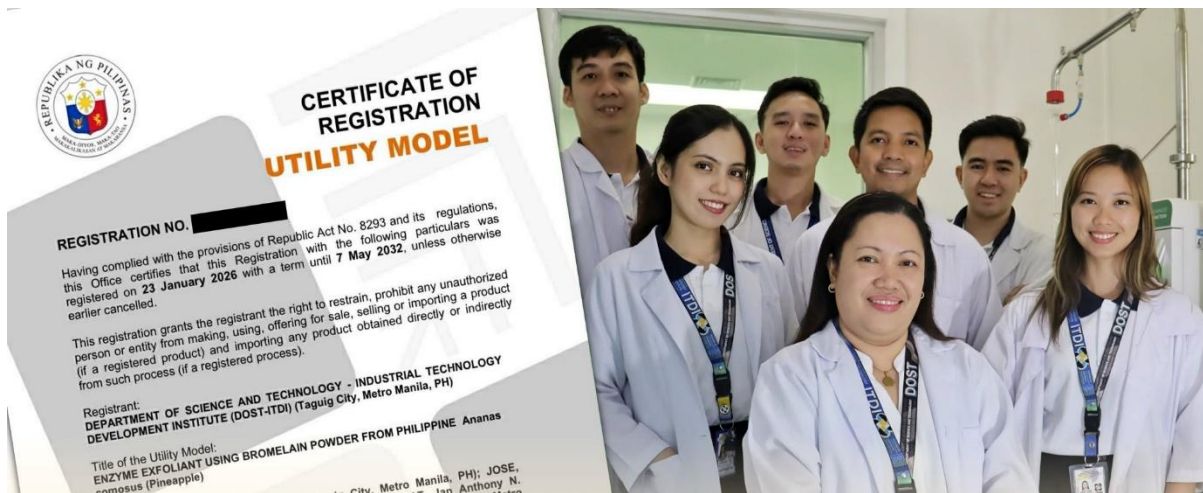


DOST-ITDI Researchers Secure Intellectual Property for Sustainable Skincare Active Ingredient Derived from Pineapple Waste

TAGUIG CITY, Philippines — Researchers from the Department of Science and Technology-Industrial Technology Development Institute (DOST-ITDI), through its Standards and Testing Division (STD), have achieved a milestone in sustainable innovation by securing a Certificate of Registration for a new Utility Model that transforms agricultural by-products into a sustainable source of a high-value



cosmetic active ingredient.

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The Utility Model, titled “Enzyme Exfoliant Using Bromelain Powder from Philippine Ananas comosus (Pineapple),” offers a circular-economy solution to the mounting environmental challenges posed by agricultural by-products such as pineapple peels, thereby turning environmental liability into an economic asset.

The Philippines is among the world's largest pineapple producers, yielding approximately 2.91 million metric tons in 2022. In 2024, Indonesia and the Philippines remained the leading global producers. However, data from the Philippine Statistics Authority (PSA) reveal a stark reality: nearly 75% of the fruit—including the peels, crown, and core—is discarded. This results in up to 130,000

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metric tons of annual waste, creating significant disposal challenges and environmental concerns.

The DOST-ITDI initiative addresses this underutilization by "valorizing" pineapple peels. Using a standardized extraction process, the team recovers bromelain, a natural proteolytic enzyme with potent bioactivity.

As the global beauty industry shifts toward clean and active skincare, bromelain stands out as a promising natural alternative to harsh chemicals. Bromelain exhibits exfoliating, anti-inflammatory, and antioxidant properties, making it a valuable bioactive compound for cosmetic and dermatological applications. As an enzyme-based exfoliant, bromelain gently removes dead skin cells by catalyzing protein breakdown, offering a milder alternative to abrasive synthetic exfoliants and improving skin texture and appearance. By sourcing actives from biomass, the process reduces the carbon footprint of cosmetic manufacturing.

Committed to supporting a Circular Economy, STD Division Chief Ma. Rachel V. Parcon led the research team—Chelsea Kate F. Jose, Jan Anthony N. Ysulat, Geaver Nicolei G. Cortez, Isaiah U. Sta. Ana, John Cyrus O. Alfaro, and Mark Nicholas L. Yow—at the forefront of Philippine science-driven cosmetics. Their work directly supports sustainable materials use and provides a roadmap for local industries to adopt greener practices. (DDGotis, ITDI-TSD; CKFJose, ITDI-STD)