Global Greenchem
Innovation & Network Program

Cleaning Homes by turning Quinoa Waste into Sustainable Household Care

Key Concepts- Greener Synthetic Pathways, Greener Reaction Conditions, Design of Less Hazardous Chemicals, Source Reduction

The Hidden Environmental Cost of Everyday Cleaning

Every day, millions of households use cleaning products to maintain healthy and hygienic living spaces. Yet behind this routine activity lies a largely invisible environmental problem. Most conventional cleaning products rely on petrochemical surfactants and aggressive chemical compounds that ultimately enter waterways and ecosystems after use, contributing to pollution and environmental degradation.

At the same time, Peru's thriving quinoa industry generates significant volumes of quinoa husk, a byproduct rich in natural saponins that is often discarded despite its remarkable cleaning properties. This overlooked biomass represents both an environmental challenge and an untapped opportunity.

Hanqa was born at the intersection of these two realities: the need for safer cleaning solutions and the opportunity to transform agricultural waste into high-value sustainable products.

Unlocking the Power of Nature Through Biotechnology

Hanqa is a cleantech company that converts quinoa husk into innovative household cleaning solutions using biotechnology, green chemistry, and circular economy principles. The company extracts natural saponins from quinoa husks and combines them with functional compounds derived from native Peruvian plants to create high-performance cleaning products. These formulations replace conventional petrochemical surfactants with renewable, biodegradable, and naturally derived ingredients that are safer for both households and the environment.

By transforming an agricultural residue into a functional cleaning platform, Hanqa demonstrates how biotechnology can create products that deliver performance without compromising sustainability. Today, the technology has reached TRL 9, confirming successful operation and commercialization under real-world conditions.

Green Chemistry as a Competitive Advantage

One of Hanqa's greatest strengths lies in its ability to enhance its formulations with functional ingredients sourced from Peru's rich biodiversity. The company incorporates natural extracts from maca, lemon balm (toronjil), orange, mandarin, and lemon, combining their aromatic, functional, and bioactive properties to create innovative cleaning solutions. These plant-based ingredients contribute not only to product performance and consumer experience but also reinforce Hanqa's commitment to replacing synthetic additives with renewable, naturally derived alternatives. By integrating native and locally sourced botanical resources into its formulations, Hanqa creates products that celebrate Peru's biodiversity while delivering effective, environmentally responsible household cleaning solutions.

- Reduction of agricultural waste through biomass valorization.
- Lower toxicity compared to conventional cleaning formulations.
- Reduced dependence on petrochemical raw materials.
- Increased use of renewable and naturally derived ingredients.
- Enhanced biodegradability and lower potential impact on aquatic ecosystems.
- Reduced environmental footprint throughout the product lifecycle.

Consumer expectations are changing. Increasingly, people are looking for products that not only perform well but also align with their environmental values. Hanqa is responding to this shift by creating a new generation of cleaning solutions that combine scientific innovation, biodiversity conservation, and circular economy principles. Through recurring sales, technology licensing opportunities, and scalable product development, the company is building a business model designed for long-term environmental and commercial impact.

Its success demonstrates that sustainability and performance are not opposing goals. On the contrary, they can reinforce one another when innovation is guided by science and purpose.

By transforming discarded quinoa husks into high-value cleaning products, Hanqa is proving that some of the most powerful solutions to modern environmental challenges can emerge from resources that society once overlooked. In doing so, the company is helping redefine what clean really means—for homes, for communities, and for the planet.

Supplemental Information

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