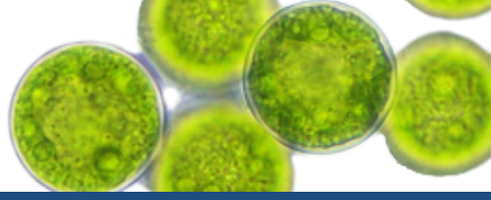
Global Greenchem
Innovation & Network Program



Applying Green Chemistry to Measurable Health: How Inspirall Is Reinventing the Fight Against Childhood Anemia

Key Concepts- Carbon Capture and Utilization, Microalgae-Based Bioproduction, Photobioreactor, Nutritional Suplement

When Traditional Solutions Fail Children

For decades, childhood anemia has remained one of the most persistent public health challenges in Peru. Despite significant investments in supplementation programs and nutritional interventions, anemia rates remain stubbornly high, affecting approximately 43% of children. The consequences are profound: impaired cognitive development, reduced learning capacity, weakened immune systems, and long-term economic impacts on families and society.

The problem is not merely a lack of resources—it is a structural failure in the way nutritional interventions are delivered. Many iron supplements are rejected by children due to their unpleasant taste, leading to low adherence and limited health outcomes. At the same time, governments and organizations invest millions of dollars in programs without reliable mechanisms to verify whether children's health is actually improving.
This gap between investment and measurable impact inspired the creation of Inspirall.

Engineering a Carbon-Capturing Bioeconomy with Microalgae

Inspirall is a Deep Tech ecosystem designed to eradicate childhood anemia through a combination of biotechnology, nanotechnology, digital innovation, and community empowerment. Instead of relying on synthetic iron supplements, the company developed Ficocrispy, a biotechnology-based superfood made from spirulina microalgae. Rich in naturally bioavailable nutrients, Ficocrispy is engineered to provide an enjoyable taste experience that encourages consistent consumption among children.

At the heart of Inspirall's innovation lies a carefully engineered production process that transforms microalgae into a highly functional nutritional product while minimizing environmental impact. The process begins in open photobioreactors installed inside solar greenhouses, where spirulina is cultivated under controlled temperature conditions to maximize biomass growth using renewable resources.

Once the desired concentration is reached, the biomass is harvested through filtration and washing stages that remove residual salts and impurities. The collected spirulina then undergoes a gradual pressing process to reduce moisture while preserving its nutritional integrity.

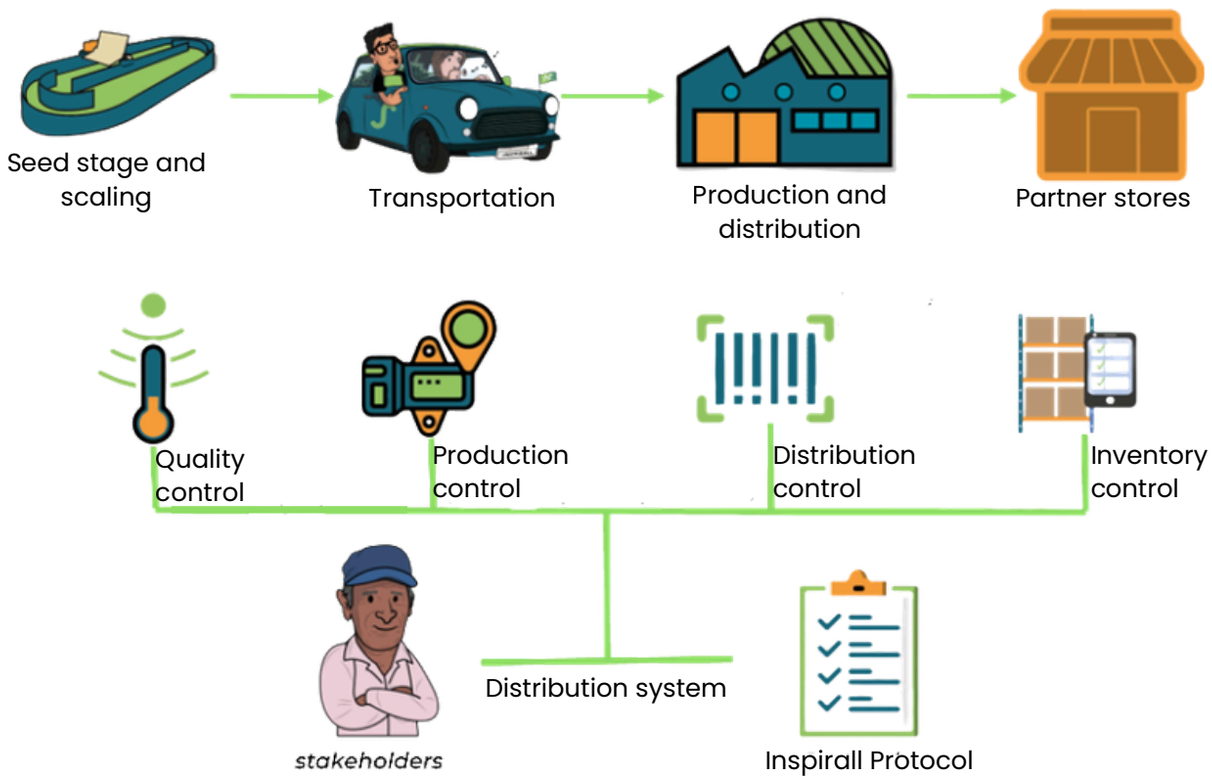
A key technological breakthrough occurs during the nanoencapsulation stage. Through a clean nanotechnology process, Inspirall protects spirulina's bioactive compounds—particularly phycocyanin and naturally occurring iron—from oxidation and degradation. This stabilization improves nutrient retention, functionality, and shelf life while maintaining the product's appealing flavor profile.

The resulting biomass is then extruded into small strands and carefully dehydrated at low temperatures to preserve its nutritional properties. The final product is transformed into Ficocrispy, a crunchy, nutrient-dense superfood that combines high consumer acceptance with measurable health benefits. By integrating biotechnology, nanotechnology, energy-efficient greenhouse systems, and environmentally responsible processing, Inspirall converts sustainable biomass into clinically verifiable nutrition for children at risk of anemia.

Turning Blockchain Into a Tool for Public Health

Perhaps Inspirall's most disruptive innovation lies in its use of blockchain technology. Traditional nutrition programs often measure distribution rather than outcomes. Inspirall shifts the focus toward verified health impact.

Its blockchain-enabled platform records and certifies hemoglobin improvements in real time, creating a transparent and auditable system for tracking clinical results. This allows governments, NGOs, corporations, and families to see tangible evidence of health improvements rather than relying solely on assumptions. By transforming health interventions into measurable outcomes, Inspirall is redefining accountability in public health programs.



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Empowering Rural Women Through Decentralized Production

Beyond addressing nutrition, Inspirall is transforming local economies. The company operates a decentralized network of microalgae greenhouses across Arequipa, Pucallpa, Cañete-Lima, and Moquegua. These production hubs are managed primarily by rural women and older adults, creating new income opportunities while strengthening local resilience.

This distributed production model allows communities to become active participants in solving public health challenges rather than passive recipients of aid programs. By connecting biotechnology with social inclusion, Inspirall demonstrates how innovation can generate both economic and health benefits simultaneously.

Inspirall's vision extends beyond selling nutritional products. The company is building an ecosystem where every stage of impact—from sustainable production to clinical outcomes—is measurable, transparent, and scalable. Its model transforms nutrition programs from uncertain expenditures into verifiable investments in human development.

With initial agreements and letters of intent already secured, pilot market validation completed, and growing demand across Peru, Inspirall is positioning itself at the intersection of biotechnology, sustainability, and digital health. In a world increasingly demanding accountability and measurable impact, Inspirall offers a compelling proposition: not just healthier children, but proof that they are getting healthier.

70% active children with rising hemoglobin levels

$15 USD per month is more affordable than repeated medical consultations and hospitalizations for sick children

19.08 kg CO_2e per kilogram of biomass, with projections to decrease as the operation scales

The company's mission is simple yet ambitious—to ensure that the fight against childhood anemia is no longer based on distribution metrics, but on real, measurable health outcomes. Because true innovation is not about delivering products. It is about delivering results.

1. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight?hl=es-US
2. https://www.carbonbrief.org/food-systems-responsible-for-one-third-of-human-caused-emissions/
3.https://doi.org/10.3390/environments12090319
4.https://www.terapiaclark.es/Docs/spirulina_book.pdf

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