Organic protein and carb ingredients for food applications (2020-001 & 2022-033)

Precision proteins and carbs isolation process for functional food product applications

Market Overview

Today, there exists a need to produce organic, allergen-free, and non-GMO protein ingredients from plant sources. This new all-organic plant protein isolation process isolates proteins and carbs and preserves their food and functional properties. Advancements in the quality of protein isolates and concentrates are advantageous for foods and beverages .Grand Review Research expects the plant protein market to grow at a CAGR rate of 8.8% between 2022 and 2030. These organic plant proteins are ideal for dry and liquid supplements, animal feed, dairy and meat alternatives, and various food and beverages. While the majority of plant proteins on the market are produced from conventionally produced soybean and other legumes, making them not suitable for semi-solid and liquid food product applications, Clemson researchers have created a plant protein and carb isolation process using pea, lentil, and chickpea that is not only organic but free of sodium and chemical residues, making easy to apply to any food product.

Technical Summary

This plant protein and carbs isolation process produces >99% organic protein with the highest food functional and nutritional value. This process preserves native macromolecular structures free of sodium and other chemical residues. In the process, unique blending abilities can produce novel ingredient mixtures to apply for any food application.

Application

The organic protein and carb isolate process preserves the native structures of those macromolecules and enables the blending of those ingredients for optimal food functional and nutritional claims.

Development Stage

Ready for industrial-commercial applications

Advantages

- Produces >99% organic protein isolates/concentrates and carb ingredients ready for liquid, semi-solid, and solid food applications
- Free from sodium and agricultural chemical residues such as pesticides and herbicides
- Ingredients with the highest food functional properties (color, taste, texture, stabilities) and nutritional value (digestibility, prebiotics)

App Type	Country	Serial No.	Patent No.	CURF Ref. No.	Inventors
Utility	United States	NA	63/106,015; 63/481,907	2020-001 2022-033	Dr. Dil Thavarajah

About the Inventors

Dr. Dil Thavarajah

Professor of Pulse Quality and Nutritional Breeding at Clemson University

Dr. Dil Thavarajah is a Professor of Pulse Quality and Nutritional Breeding in the Department of Plant and Environmental Sciences at Clemson University. She is a Clemson University School of Health Faculty Research Scholar. She earned her Ph.D. in Plant Sciences from the University of Saskatchewan in Canada. Before coming to Clemson, Thavarajah worked in the Canadian lentil breeding and biofortification program at the University of Saskatchewan, Canada, and established the Pulse Quality and Utilization laboratory at North Dakota State University. Her current research centers on finding whole-food-based solutions to combat global “hidden hunger” - micronutrient malnutrition, obesity, and overweight using pulse breeding and genetic approaches to increase the nutrition quality of seeds. Thavarajah is internationally recognized as a leader in pulse biofortification, especially for minerals and protein. She is an honorary visiting lecturer at the University of Peradeniya, Sri Lanka, and a key research partner to the International Center for Agricultural Research in the Dry Areas (ICARDA) to release biofortified lentil cultivars for Africa and Asia.

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