



# Process Technology for Ginger Extract as a Water Soluble Powder (Standardized to > 20% w/w )

## Technology Description

As the name "oleo-resin" indicates the ginger oleoresin predominantly contains the ginger oils and the resins which are both water insoluble.

The insolubility of ginger oleo-resin / extracts in water becomes a hindrance for the formulators in the food and beverage industry. They prefer to use ingredients which are water soluble with high level of active constituents such that incorporation of minimum quantity provides the desired benefits.

Under this project, for the first time, we have developed a special process by which we are able to produce a standardized ginger extract having > 20% w/w total gingerols in a water soluble form

Name Of institute:  
OUAT (Bhubaneswar, Odisha);  
NATURAL REMEDIES (Bangalore, Karnataka)  
Stage of development:  
Ready for Commercialization

Scientific Experts:  
Dr. Amit Agarwal,  
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## Background

The global market for plant-derived drugs was worth an estimated \$18 billion in 2005. As per an estimate of WHO, the demand for medicinal plants is likely to increase more than US\$5 trillion in 2050. In India, the medicinal plant-related trade is estimated to be approximately US \$1 billion per year.

## Benefits / Utility

Primary producers (farmers/growers) Food and beverage industry  
Nutraceutical formulators Employment generation for local people  
Revenue generation to Government and to all stake holders in the ginger value chain

## Country Context

India.

## Scalability

Yes, the technology is scalable. The company already has a business model wherein standardized extracts are manufactured in a commercial facility having the capacity to process > 5 tons of herb per day. Since the scale up concepts and standard operating procedures are already available, there is room for expanding the facility further in

## Business and Commercial Potential

Water soluble (ginger oleoresins are water insoluble thus the water solubility improves the application in food, soft drinks/beverages etc).  
High gingerol content (thus smaller amounts / doses are sufficient)  
Powder form (ginger extracts are generally sold as sticky thick pastes whose handling is difficult and invariably involves loss of material)  
High water solubility is known to improve bioavailability of botanical extracts

## Potential investors to this technical innovation

Food and beverage industry Nutraceutical formulators Natural FMCG manufacturers Herbal cosmetic companies Phytomedicine companies



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## Financials

Quantum of Financial Investment Required: It depends upon the scope of the commercial business operation. Approximately a further investment of Rs. 2.50 crores to Rs. 3.00 crores in R&D and an investment of Rs. 5.00 crores in production facilities can significantly enhance the commercialization prospects of the technologies developed under this project. Amount of business volume for the technologies developed under this project:\* As such (without any further scientific work) – Rs. 2 crore to Rs. 3 crores per annum After adequate amount of scientific support Rs. 10 crores to Rs. 15 crores per annum Anticipated forecast but

## Target Market / Customer

Excellent Choice for incorporation in Dry drink mixes, Ready-to drink products, Beverages, Candies and Nutritional bars. Potential Market: Food and beverage industry Nutraceutical formulators Natural FMCG manufacturers Herbal cosmetic companies Phytomedicine

## Limiting factors for large scale commercialization

Regular availability of raw ginger of elite quality (having a total gingerol content of > 1.5 % w/w or better) Supply of ginger raw material at affordable cost (premium price can be paid only for premium / elite quality raw material) Mass scale cultivation of elite quality of ginger along with proper post harvest technology with reference to gingerol content. Upgradation of primary processing units for adequate drying and size reduction of dried rhizomes Adoption of continuous extraction technology for high throughput production Focused

## Social impact of the technology

Benefits to primary producers (Farmers/Growers) Employment generation Awareness of health benefits from ginger and ginger products Additional revenue generation for all stake holders in the

