

TECH OFFER

Encapsulation For Targeted Release Of Probiotics In Gut



KEY INFORMATION

TECHNOLOGY CATEGORY:

Foods - Ingredients

Healthcare - Pharmaceuticals & Therapeutics

Life Sciences - Industrial Biotech Methods & Processes

Materials - Bio Materials

Personal Care - Nutrition & Health Supplements

TECHNOLOGY READINESS LEVEL (TRL): **TRL4**

COUNTRY: **SINGAPORE**

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OVERVIEW

Conventional probiotics often loses its viability as it passes through the upper gastrointestinal tract. This encapsulation technology can improve the shelf life of probiotics and maintain viability during their passage through the human upper gastrointestinal tract.

This patented technology of encapsulating probiotics involves a modified spray-drying process which is high-throughput, food-grade, and inexpensive. This is applicable to both pharmaceutical and cost-sensitive industrial sectors, for example animal feed production. The encapsulated probiotic product achieves qualities of gastroprotection and targeted release in the intestinal region, thereby boosting the beneficial effects of probiotics on gut health.

This technology is suitable for companies looking for an improved probiotics delivery system to increase the viability of probiotics as dietary supplements and functional food products for both human and animal health.

TECHNOLOGY FEATURES & SPECIFICATIONS

This technology provides four major advantages in probiotics supplementation:

1. Scalability of production
2. Uses food-grade materials and hence renders the advantage of non-toxicity
3. Offers gastroprotection of probiotics in the upper GI tract
4. High viability over shelf-life

The modified spray drying technique used in this technology is a facile, high-throughput and industrially preferred method to produce environment resistant encapsulation systems.

Key Advantages of this Optimized Spray Drying Process include:

- High encapsulation efficiency
- High probiotics viability
- Achieving a dried product with high powder yield

POTENTIAL APPLICATIONS

This technology may be used to encapsulate a variety of candidate probiotic microorganisms. With its versatility, this technology can henceforth be applied to many different applications and markets.

The encapsulated dry probiotic powder product is:

1. Applicable to both human health product lines and animal feed formulations
2. Compatible with the incorporation of other active pharmaceutical ingredients (to promote desired therapeutic outcomes)
3. Dried probiotic powder is compatible with standard pharmaceutical or dietary supplement dosage formats (e.g. capsules, tablets, or sachets).
4. Dried powder can be incorporated into food or beverage matrices to enhance their functional attributes (e.g. confectionaries, dairy products, and instant foods)

UNIQUE VALUE PROPOSITION

This technology can help companies to develop products that:

- Increase consumer acceptability since the material used is of plant-based origin
- Maximize delivery in high viable doses to the gut given that encapsulated probiotics are protected against the harsh upper GI tract conditions of acidic pH, digestive enzymes, and bile salts
- Improved storage stability of encapsulated probiotics
- Maintain the GI-resistant properties