

## Technology Offer



### Title: Bacterial growth enhancer technology (Ref: 07 GB EAST OHRH )

#### Abstract:

**A UK technology management company offers for licensing a patented bacterial growth enhancer technology that is non-toxic and completely safe for both animal and human consumption. The technology is prepared from cheap non-GM substrates, is functional at very low concentrations and is suitable for incorporation into both liquid and solid media. The technology has wide-scale application in the food and drink industries (e.g. pro-biotics, dairy and food fermentation, brewing industry).**

#### Description:

This new technology, offered for licensing by a UK technology management company, is a recently discovered, patented novel bacterial growth enhancer that is non-toxic and completely safe for both animal and human consumption. The additive is prepared from cheap, non-GM substrates, and is functional at very low concentrations. It is also autoclave (sterilisation using steam and pressure) and lyophilisation (freeze-drying) stable and suitable for incorporation into both liquid and solid media.

The development of the technology to date has focussed upon its application in improving the growth characteristics of Lactic acid bacteria (LAB) and as such has been named "LAB Enhancer". LAB are Gram-positive commensals of the mammalian gastrointestinal tract that have also been used in food preservation for millennia. LAB is now also used more systematically, forming the foundation of worldwide dairy and food fermentation industries (cheese, yoghurts, fermented hams and sausages, condiments such as fish and soy sauces). In the past 20 years there has also been a huge explosion in their use as pro-biotics – with LAB ingested directly for human and animal health purposes in the form of yoghurts, beverages and other supplements.

Although widely available, LAB have complex nutritional and cultural requirements involving specialised micro aerophilic atmospheres and specific, multi-component culture media. Thus any new innovation which can simplify either of these cultivation parameters without requiring significant changes in existing fermentor technology is likely to find wide scale application.

The LAB enhancer technology confers a number of remarkable attributes. Firstly, it induces growth of otherwise micro-aerophilic LAB species in room air, allowing their aerobic culture and thereby removing the need for costly anaerobic culture atmospheres. The technology also preferentially enhances growth of cold storage stressed LAB, particularly strains used in human pro-biotic preparations, acting as a resuscitation factor helping to maintain culture viability during cold storage. It is also promotes the production of LAB exopolysaccharides increasing culture viscosity and cell adherence which may have beneficial effects for gut colonization.

The LAB enhancer technology uses a natural plant extract consumed by humans for millennia, for which reason its inclusion into pre-existing LAB products or technical processes for their production would not require additional statutory approval. Its anticipated use would be as an adjunct for existing LAB production/fermentation processes, and for inclusion as a supplement in pro-biotic beverages, or into LAB diagnostic culture media.

#### Innovations and advantages of the offer

There is nothing currently available commercially that combines all of the properties of the LAB enhancer. Addition of the LAB enhancer would not require changes in pre-existing culture protocols – it would simply improve growth rates, and possibly final biomass levels.

- Bacterial growth promoter
- LAB resuscitation factor.
- Enhances exopolysaccharide release.
- Improves cellular adherence and culture viscosity.
- Natural plant extract: no regulatory issues.

- Cheap and easy to produce.
- Autoclavable and lyophilisation stable: suitable for both liquid and solid media.

### Current and Potential Domain of Application

- Enhancing fermentation characteristics – reduction of lag phase
- Enhancing growth in large scale LAB cultivation such as yoghurt and fermented drink production
- Additive to allow the aerobic culture of LAB at an industrial scale
- Additive for use in development of novel probiotic technologies
- Additive to probiotic supplements where maintenance of bacterial viability is an important issue for product efficacy e.g. spray-dried probiotics
- Growth / metabolic supplement for LAB being used in food / beverage manufacturing industry e.g. cheese manufacturers, producers of fermented meats, pickles etc.
- Food & brewing industry diagnostics

### List of Keywords

#### Technology

- ✦ Enzymology / Protein Engineering / Fermentation
- ✦ Drink Technology
- ✦ Food Additives/Ingredients/Functional Food
- ✦ Food Microbiology / Toxicology / Quality Control

#### Market

- ✦ Food and Beverages
- ✦ Health food
- ✦ Food supplements/vitamins
- ✦ General food products

### Further Information (Technical Details Concerning the Profile)

Further technical information is available under a confidentiality agreement and materials for evaluation are available under an evaluation license.

### Current Stage of Development

Available for demonstration

### Exploitation of RTD Results

None

### Collaboration Type

- ✦ License Agreement

#### Comments

Partners are expected to be ingredients manufacturers & suppliers or cultivators & suppliers of lactic acid bacteria, functional food manufacturers interested in LAB inclusion in probiotic foods or beverages or food or drink companies with interest in improving their existing LAB production processes (e.g. in the dairy/food fermentation or brewing industries).

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