



Prebiotics

Did you know that the market for prebiotics is expected to increase by 11.3% per year until 2030? Health-conscious customers, as well as new applications in the feed industry are driving demand. With acib's expertise on prebiotic bioproduction, companies can confidently venture into this lucrative market. Seize this opportunity!

acib-EXPERTS:

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DEVELOPMENT STATUS:

TRL 3-7 (i.e. from experimental proof-of-concept to demonstration in operational environment)

BACKGROUND

Prebiotics are non-digestible compounds in our diet that selectively nourish beneficial microorganisms in our gut. These microorganisms make it much harder for pathogens to settle themselves and they produce short-chain fatty acids which positively influence various physiological functions. Therefore, prebiotics are not only crucial for the well-being of us humans, but also for animals and livestock. Prebiotics play a vital role in improving feed conversion and growth rates and survival in livestock, especially since the EU banned the routine use of antibiotics in animal feed. Despite the growing interest, prebiotics are often not readily available, and current production processes face challenges related to costs, yield, and purity.

TECHNOLOGY

acib has developed many industrial biocatalysts and has used them in biocatalytic processes for the production of various prebiotics. With the right expertise on enzyme expression, engineering, immobilization and biocatalyst formulation, reaction engineering and subsequent process design including integrated downstream processing, we can report on several successful case studies:

IPR:

EP2332426A1
 EP2509450B1

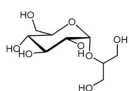
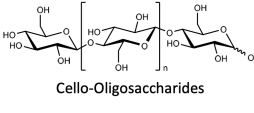
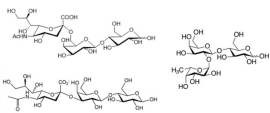
KEYWORDS:

Prebiotics
 Synbiotics
 Microbiota
 Intestinal Flora
 Digestive Health
 Metabolic Health
 Gut-Brain Axis
 Sustainable Bioproduction

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 <p>Glucosylglycerol</p>	<p>Natural compatible solute from bacteria under extreme conditions</p> <ul style="list-style-type: none"> Moisturizing, stress protectant, cell stabilizing But also prebiotic and alternative sweetener EP2332426A1 – Glucosylglycerol as prebiotic 	<p>TRL 6-7</p> <ul style="list-style-type: none"> Sustainable and green bioproduction process Available in kg-scale for efficacy testing Production partner
 <p>Cello-Oligosaccharides</p>	<p>Cello-Oligosaccharides (β1,4-linkage)</p> <ul style="list-style-type: none"> According to structure, potential prebiotic properties Tested on different probiotics Fiber compound 	<p>TRL 5 (Demonstration)</p> <ul style="list-style-type: none"> Continuous bioproduction Defined mixture of degree of polymerization
 <p>Human milk oligosaccharides (HMOs)</p>	<ul style="list-style-type: none"> Intestinal microbiome Immune system Brain development 	<p>TRL 3-4 (Technology development)</p> <p>Commercial source: ALFA Chemistry, CHR Hansen, TCI Europe (100 mg) Ongoing acib project</p>

OFFER

acib offers to provide functional prebiotics in quantities suitable for testing, with options available in the kg-scale for glucosylglycerol; 100 g-scale for cello-oligosaccharides; and milligram-scale for human milk