

An Innovative Use of Sugar Beet Fiber to enhance Food Products by acting as Flavour Carriers.

There is potential for sugar beet fiber-based flavouring granules to revolutionize the way flavours are incorporated into food products, providing both functional and economic benefits.

PEKTOS BF - Sugar Beet Fibers - are gaining attention in the food industry due to their high dietary fiber content and versatile applications. These fibers can be used to carry and deliver flavours in food products, which not only adds nutritional benefits but also improves the taste and overall quality of the food.



Production Process

The production process of these fibers suitable as flavour carriers begins with sugar beet pulp, a byproduct of sugar extraction. This pulp is dried using superheated steam, which removes any natural odour and taste, leaving behind virtually odour and taste-neutral fibers.



These fibers are then crushed and screened into different forms, such as fine powders, coarse particles, and flakes, catering to various culinary needs.

Nutritional and Functional Properties

Sugar beet fibers are rich in dietary fibers, with about 50% being insoluble and 25% soluble. They contain around 10% protein, minimal residual sugar, and approximately 4% minerals. These fibers are gluten-free (<20ppm), making them suitable for people with gluten intolerance, and they comply with kosher and halal dietary standards. A vital feature of these fibers is their high pectin content (about 22%), which gives them a high water-binding capacity. That means they can absorb and retain significant amounts of water, enhancing the texture and stability of food products.

Flavour Encapsulation

A microencapsulation system ensures flavours are well-preserved and released effectively in food products. The system involves coating the fibers with a mixture of film-forming hydrocolloids and matrix-forming polysaccharides. That creates a protective layer around the flavour droplets, preventing them from evaporating or oxidizing. The encapsulated flavours are then evenly distributed on the sugar beet fibers, which absorb the water from the coating mixture, leaving a dry and free-flowing granulated product.



Applications in Food

These flavoured sugar beet fibers can be used in various food products. They are ideal for bread, cakes, snacks, instant products, and pet food. In baking, they help improve the texture, extend shelf life, and enhance the overall nutritional profile of the products. For instance, they can provide a better crumb structure and moisture retention in bread and cakes. In instant products they ensure consistent flavour release and improved mouthfeel.

Advantages

Using sugar beet fibers as flavour carriers offers several advantages. Firstly, it simplifies the production process by combining two ingredients—fiber and flavour—into one. That reduces procurement, storage, and handling costs. Secondly, the encapsulated flavours are released gradually, providing a more controlled and sustained flavour experience. That can be particularly beneficial in products like tea mixes, where the flavour release can be timed with the infusion process.

Broader Implications

Using sugar beet fibers as flavour carriers represents a significant advancement in food technology. It aligns with the growing demand for healthier, functional foods offering more than essential nutrition. By incorporating these fibers, food manufacturers can create products that are tasty and appealing and contribute to overall health and wellness.



In conclusion, sugar beet fibers are a valuable ingredient in modern food production. Their ability to carry and preserve flavours and their nutritional benefits make them an excellent choice for various food applications. This innovation reflects a broader trend towards more functional and health-conscious food products.