STUDY OF STEVIA ECAPSULATION FOR USING IN PROBIOTIC DELIVERY SYSTEMS

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At the moment, incoming products, beverages, raw materials on the market must comply with the requirements of State standards and safety requirements. The question of nutritional value is growing every day, based on the fact that the constant use of healthy foods develops the body's resistance to various diseases. Such products are called useful or functional products. An equally urgent task for today's specialists is the development of a functional fermented milk product that contains a pleasant sweet taste from natural Stevia plant extract. *Stevia rebaudiana Bertoni* is a natural sweetener, which has many useful properties. For example, one of the first benefits in low-calorie content does not include fast carbohydrates. So, Stevia has less effect on blood sugar levels and does not increase insulin and is suitable for diabetics. In addition, Stevia extract can be used as prebiotic for co-encapsulation with probiotic microorganisms to enrich functional beverages.

Purpose of this study is investigation of formulation parameters for receiving capsules which create a strong barrier to penetration of the encapsulated substance to the external environment; the capsules providing more efficient manifestation of a complex of biological, pharmacological, preventive or medicinal properties of bagged substance. Development of capsules of the long term of storage in which the active loaded material is protected by an envelope and can preserve activity in various pH environments became the most perspective.

Ionic gelation method through extrusion represents a simple encapsulation technique that does not require organic solvents, making it suitable for both hydrophobic or hydrophilic compounds.

Stevia extract -loaded Alginate-Chitosan particles with improved physicochemical properties with a process yield of 88-89% were obtained. The release kinetics of active agent was monitored using UV-vis spectroscopy and showed a slow release within 24 hours. Thus, the slow kinetics of the release of the agent demonstrates the effectiveness of the methodology of encapsulation based on the ionic gelation and hardening of shell.

Creation of capsules with the ingredients encapsulated inside, having thermostable properties, resistance to influence of acidic environments and enzymes, mechanical and osmotic resistance to influence of external physical and chemical factors, such as mechanical effect, temperature increase, change of pressure, and also increase in protection of bagged substances remains as an actual problem at present time.

The morphology, average diameters of wet and dry microcapsule were determined by optical microscopy using Olympus Soft Imaging Solutions GmbH, version E_LCmicro_09Okt2009.

Twenty microparticles were randomly selected from triplicate batches to determine size distribution. The compositions of microcapsules for analysis on a scanning electron microscope were applied to a highly conductive graphite tape. SEM equipment was used to determine the pore size on the surface of the microparticles. Studies results showed that sizes of microcapsules were 720-830 μm, and color was determined by color of loaded agent.

Microencapsulation allows not only protect active agent from aggressive environment, prolong activity, but also can be used for development product with useful properties for human health.

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