

BIOTECHNOLOGY & BIOENGINEERING

高含量 β -胡萝卜素微胶囊干粉流动性的考察及其影响因素

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摘要 The flowability of five kinds of microencapsulation powders, with different β -carotene contents and by two alternative particle-forming technologies i.e. spray-drying and starch-catching beadlet technology, was measured. The actual flow properties of the five powders were compared based on bin-flow test, and three flow indexes (Hausner ratio, repose angle and flow index) were measured. It was found that the repose angle is the most suitable index to reflect the flowability of these powders for the particle properties would not be altered due to compaction or tapping during the measuring process. Particle size and particle size distribution play most important roles in the flowability of these granular materials, which was also influenced by other factors like shape, surface texture, surface roughness, etc. Microcapsules with wall material of gelatin and a layer of modified starch absorbed on the surface showed excellent flowabilities and good mechanical properties, and they are favorable for tableting to supply β -carotene.

关键词 [\$\beta\$ -carotene](#) [microcapsule powders](#) [flowability](#) [Hausner ratio](#) [repose angle](#)

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Measurement and influence factors of the flowability of microcapsules with high-content β -carotene

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Abstract The flowability of five kinds of microencapsulation powders, with different β -carotene contents and by two alternative particle-forming technologies i.e. spray-drying and starch-catching beadlet technology, was measured. The actual flow properties of the five powders were compared based on bin-flow test, and three flow indexes (Hausner ratio, repose angle and flow index) were measured. It was found that the repose angle is the most suitable index to reflect the flowability of these powders for the particle properties would not be altered due to compaction or tapping during the measuring process. Particle size and particle size distribution play most important roles in the flowability of these granular materials, which was also influenced by other factors like shape, surface texture, surface roughness, etc. Microcapsules with wall material of gelatin and a layer of modified starch absorbed on the surface showed excellent flowabilities and good mechanical properties, and they are favorable for tableting to supply β -carotene.

Key words [\$\beta\$ -carotene](#); [microcapsule powders](#); [flowability](#); [Hausner ratio](#); [repose angle](#)

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