PROPERTIES OF CHITOSAN MICROENCAPSULATED ORANGE OIL

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Fragrance encapsulated in small particles of less than 20 μm diameter is preferred for use in textiles. In this study, aromatic orange oil was emulsified in a continuous phase of chitosan, and the emulsion was spray-dried to produce microencapsulated orange oil. The most effective combination of emulsifiers, ratio of chitosan to orange oil, and spray-drying conditions were determined. Stable emulsion was obtained when Tween40 and Span20 were used as compound emulsifiers with the ratio of 4:1(w/w). The optimum conditions for spray drying were 1% (w/w) chitosan in acetic acid and the emulsifiers content were 3-7% (w/w) of the oil. The encapsulation efficiency for orange oil was over 90% with a 1:2 (w/w) ratio of oil to chitosan. Microcapsules had a mean diameter below 20 μm and regular particle morphology. The orange oil in the chitosan microcapsules prepared by spray-drying was retained in cotton fabrics after washing in normal detergent solution longer than orange oil alone.