

Encapsulation of Essence Oil into Biodegradable polymeric fibers by Electrohydrodynamic Jetting

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To develop a controlled release system for essence oil of *Zizyphus jujube*, encapsulated within the core-shell structured ultrafine fibers prepared by electrospinning. Encapsulation is an important technique being used to protect sensitive active materials. The essential oil, which is sensitive to the environmental stimuli, have antimicrobial efficacy against food-borne pathogens. In this study, we report the use of electrospinning for the synthesis of oil-loaded PLA fibers. Coaxial electrospinning has been used to prepare ultrafine fibers with core-sheath structures, in which two components can be coaxially and simultaneously electrospun through different feeding capillary channels to generate composite microfibers. Fibers of approximately 2 μm with smooth surfaces were observed by a scanning electron microscope. Entrapment of oil in the core-shell structure is expected to slow down the release of volatiles and guarantee more protection for oil against atmospheric conditions. This method may have a potential application in different types of food or pharmaceutical products where maximum protection for flavours or sustained release is required.