

# Effects of coaxial electrospun eugenol loaded core-sheath PVP/shellac fibrous films on postharvest quality and shelf life of strawberries

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## Abstract

Strawberries are susceptible to physical injuries and fungal spoilage. To extend the shelf life of strawberries, eugenol (EG) loaded core-sheath fibrous films were fabricated and characterized as novel edible active packaging. With EG as the antifungal active substance, polyvinyl pyrrolidone (PVP) and shellac as the core and sheath matrix, respectively, PVP/Shellac fibrous films were prepared using a coaxial electrospinning technology. The data of fourier transform infrared spectroscopy and thermogravimetric analysis showed that EG was encapsulated into the core-sheath fibers and the fibers had good thermal stability. The diameter of the fibers was in the scale of micron and fibers had a bead-free surface and a clear core-sheath structure. Morphology analysis verified that the core-sheath fibrous films had good moisture resistance. The mechanical properties of fibrous films stored in dry and humid environments were tested. Application studies on the conservation of strawberries showed that EG loaded core-sheath PVP/Shellac fibrous films are able to maintain quality and extend the shelf life of strawberries, indicating that they are potential for the application in fruit preservation.