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Fabrication of PCL-based nanocapsules containing curcumin by electrospray method

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Abstract

Curcumin possesses numerous biological properties, including antioxidant, antitumor, anti-cancer, anti-cholesterol, antibacterial, antimicrobial, antiphlogistic, and antilipidemic properties. To improve the bioavailability of curcumin, and enhancing its long-term biological activity, nanoencapsulation with biodegradable polymers has become popular these years. Compared to other methods, electrospray is a new method to produce nanocapsules that are more uniform and smaller. There were different factors which controlled the size and morphology of nanoparticles, such as the size and morphology of electrosprayed particles such as Polymer and drug concentration, flow rate, electric potential difference, and the distance between the tip of the needle and the collector. The based polymer was PCL, which was blended with other polymers to make it suitable for drug delivery systems. The effect of different factors on morphology of nanoparticles were observed by Fe-SEM. These results could serve as a firm foundation to promote electrospray technique for the preparation of nanocapsuels containing bioactive components.

Keyword: “Nanocapsules”, “Electrospray”, “Curcumin”.