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Encapsulation of Volatile Citronella Essential oil by Coacervation: Efficiency and Release Kinetic Study

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Abstract : The volatile citronella essential oil was encapsulated by simple coacervation and complex coacervation using gum Arabic and gelatin as wall material. Glutaraldehyde was used in the methodology as crosslinking agent. The citronella standard calibration graph was developed with R2 equal to 0.9523 for the accurate determination of encapsulation efficiency and release study. The release kinetic was analyzed based on Fick's law of diffusion for polymeric system and linear graph of log fraction release over log time was constructed to determine the release rate constant, k and diffusion coefficient, n. Both coacervation methods in the present study produce encapsulation efficiency around 94%. The capsules morphology analysis supported the release kinetic mechanisms of produced capsules for both coacervation process.

Keywords : simple coacervation, complex coacervation, encapsulation efficiency, release kinetic study
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