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Chitosan and Poly (Vinyl Alcohol) microparticles produced by membrane emulsification for encapsulation and pH controlled release

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Highlights

- Membrane Emulsification was used for the formulation of polymeric drops
- Membrane with sharp pore openings produced smaller and more uniform drops
- Glutaraldehyde was used for chemical crosslinking of the liquid droplets
- Uniform and pH sensitive microparticles were produced using chitosan and PVA
- Degree of crosslinking and chitosan-PVA blends influenced the release

Abstract

The Dispersion Cell membrane emulsification technique was used for the production of w/o emulsions with controlled droplet size and narrow size distribution. The influence of the operating parameters of the process was investigated. Varying the dispersed phase flux (10-1250 Lh⁻¹m⁻²) and the shear stress (2-59 Pa), droplets between 30 and 280 μm were produced with CV's as low as 18%. Nickel and stainless steel membranes were used for the membrane emulsification. Pore geometry influenced the droplet size as well as uniformity and a normally hydrophilic stainless steel membrane with sharp pore openings produced more

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