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Optimization of the emulsification-diffusion method using ultrasound to prepare nanocapsules of different food-core oils

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1 **Optimization of the emulsification-diffusion method using ultrasound to prepare**
2 **nanocapsules of different food-core oils**

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14 **Abstract**

15 The aim of this study was to determine the optimal processing conditions for preparing
16 nanocapsules by the emulsification-diffusion method using ultrasound in the homogenization
17 step. β -carotene (300 g/L) was used as the active compound core and central composite design
18 (CCD) to establish optimal conditions of ultrasound power (W), encapsulated β -carotene (mg/L),
19 and poly- ϵ (caprolactone) content (PCL; mg/L). Desirability functions were used to explain the
20 behavior of the independent variables, which included particle size (PS), the polydispersity index
21 (PDI), zeta potential (ζ), and encapsulation efficiency (EE). Overall desirability was used to
22 ascertain the optimum processing conditions for nanocapsules preparation. Results showed that

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