EFFECT OF THE CONCENTRATION OF WALL MATERIAL AND ROSEMARY ESSENTIAL OIL IN CHARACTERISTICS OF MICROCAPSULES

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The present study investigated the effect of variations in wall material and rosemary essential oil concentration in properties of reconstitution of microencapsulated powders in order to optimize the production of this product and to improve stability and retention of the bioactive components. The evaluated parameters were wall material concentration (WM) (5.9-30.0%) and rosemary essential oil concentration (EO) (5.9-30.0%) using response surface methodology and applying rotatable central composite design 2^2 complete, with 4 axial and 4 central points, resulting in 12 trials. Maltodextrin and modified starch were used as wall materials (1:1 w/w). Powders produced were characterized for each treatment based in the following response variables: hygroscopicity (%), particles density (g.mL^{-1}), bulk density (g.mL^{-1}), tapped density (g.mL^{-1}), wettability (s) and solubility (%). Hygroscopicity was significantly (p<0.05) influenced by the two factors studied and higher values of WM and EO produced powders with lower hygroscopicity. Particle density was significantly (p<0.05) influenced only by WM reaching values varying between 0.85-1.37g.mL^{-1}. Bulk density was not influenced varying from 0.18g.mL^{-1} to 0.23g.mL^{-1}. The variable WM influenced significantly (p<0.05) tapped density where values ranged between 0.29-0.45g.mL^{-1}. Time for powder wettability reached minimum of 772s and was lower when using lower values for WM e concentration around 15% for EO. Powder solubility was significantly (p<0.05) influenced by WM ranging from 1.49 to 1.66%. Wall material and rosemary essential oil concentrations influenced powder reconstitution being important factors in choosing the application of this product.

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