MODELING THE EXTRACTION PROCESS OF GALLIC ACID FROM POMEGRANATE PEEL IN A PACKED BED WITH RECIRCULATION

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Abstract

The extraction of gallic acid from the pomegranate peel was carried out in a column with a diameter of 40 mm, in which pomegranate peel grains with a diameter of 2 mm were placed in a packed bed. The extraction fluid is recirculated through the system using a centrifugal pump. The fluids used in the extraction are: water, ethanol:water=50:50 and ethanol:water=96:4 (vol%). The experimental equipment has a temperature control system. The temperatures at which the experiment was carried out are: 35, 50 and 65˚C. raction, as well as the models themselves. The models used in the analysis are: film theory, non-stationary diffusion. The equations used to describe the extraction are Peleg's equation and Ponomarjev's equation. The extraction parameters for gallic acid and the diffusion coefficient were determined. A model for the dependence of the mass transfer coefficient on temperature was established, as well as a criterion equation describing the extraction of gallic acid from the pomegranate peel. The yield of gallic acid in solution is good.

Keywords: *gallic acid, extraction, packed bed, mass transfer*