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Drying Kinects of Soybean Seeds

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Abstract : The study of the kinetics of drying has great importance for the mathematical modeling, allowing to know about the processes of transference of heat and mass between the products and to adjust dryers managing new technologies for these processes. The present work had the objective of studying the kinetics of drying of soybean seeds and adjusting different statistical models to the experimental data varying cultivar and temperature. Soybean seeds were pre-dried in a natural environment in order to reduce and homogenize the water content to the level of 14% (b.s.). Then, drying was carried out in a forced air circulation oven at controlled temperatures of 38, 43, 48, 53 and 58 ± 1 ° C, using two soybean cultivars, BRS 8780 and Sambaíba, until reaching a hygroscopic equilibrium. The experimental design was completely randomized in factorial 5 x 2 (temperature x cultivar) with 3 replicates. To the experimental data were adjusted eleven statistical models used to explain the drying process of agricultural products. Regression analysis was performed using the least squares Gauss-Newton algorithm to estimate the parameters. The degree of adjustment was evaluated from the analysis of the coefficient of determination (R^2), the adjusted coefficient of determination (R^2 Aj.) And the standard error (S.E). The models that best represent the drying kinetics of soybean seeds are those of Midilli and Logarítmico.

Keywords : curve of drying seeds, Glycine max L., moisture ratio, statistical models
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