


Convective Thin-Layer Drying Characteristics of Sesame Seed

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Abstract	<p>Fundamental Information on Drying and Re-Wetting Characteristics of Agricultural Seeds Is Required in the Design and Aeration Systems as Well as in the Prediction of Drying Rate Using Various Mathematical Models. Thin-Layer Drying Experiments Were Conducted Using Air-Ventilated Oven to Simulate the Artificial Drying at Various Moisture Contents of Sesame Seed (6.9 to 18.2 % W.b) at Three Drying Temperatures of 40, 50 and 60 °C. Five Drying Models Were Evaluated for the Thin-Layer Data. the Page Equation Fitted the Data Best, where Selection of the Best Model Was Obtained by Comparing the Coefficient of Determination (R²), the Standard Error of Moisture Content (SEM) and Mean Relative Percent Error (e) between the Experimental and Estimated Values. the Drying Rate of Sesame Seed under Drying Conditions Increased with Increased Temperature of Drying(40 to 60 °C) and Initial Moisture Content of Seed(6.9, 11.5 and 18.2 % W.b). the Parameters “K” of the Page Model Increased with Increase in Temperature, while, Parameter ”n” Decreased with Temperature Increase and Increased with Increase in Moisture Content of Seed. the Effective Diffusivity Was Found to Be 2.32 X 10⁻¹¹ M²s⁻¹.</p>
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