

MOISTURE SORPTION CHARACTERISTICS OF GARRI PRODUCED USING A MECHANICAL DRYER

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ABSTRACT

Sorption characteristics of *garri* produced from a Conductive Rotary Dryer (CRD) at four different temperatures (40, 45, 50, and 55°C) and water activities ranging from 4.94 to 96.41% was determined using the static gravimetric method. The sorption data obtained were fitted to four models (GAB, Modified BET, Modified Henderson and Modified Oswin) and some parameters (monolayer moisture content, enthalpy and entropy) related to drying and storage was also estimated from the data. Adsorption equilibrium moisture content of *garri* increased with decreasing temperature at constant water activity and the sorption isotherms had a sigmoid shape (Type II). Based on the highest regression coefficient, R^2 , lowest Standard Estimated Error and the Mean Squared Error values, the GAB model best fitted the sorption isotherms of *garri* samples. At temperature ranges of 40 to 55 °C, monolayer moisture content values ranged from 4.18 to 4.95% for the product. The differential enthalpy decreased with increase in moisture content while differential entropy had negative values and increased with increase in moisture content.

Keywords: Moisture content, Conductive Rotary Dryer, temperature, water activities, models.