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Moisture sorption characteristics and isosteric heat sorption of dehydrated jackfruit (*Artocarpus heterophyllus Lam*) Eviarc sweet

Ria Jayne Tabinas
VSU, Philippines

Statement of the Problem: Fresh fruits are highly perishable since they are susceptible to microbial, chemical and physical deterioration due to their high-water activity (Aw). Addressing this, reduction of Aw has been made through dehydration. However, dehydrated products are sensitive to moisture uptake and moisture migration which has a profound effect in terms of the quality and safety of the product. Thus, development of sorption isotherms and understanding of isosteric heat of sorption specifically for Jackfruit (Eviarc Sweet) is essential for the quantitative approach to predicting stability and quality changes during packaging and storage such as the establishment of humidity boundaries to inhibit microbial growth during storage.

Methodology & Theoretical Orientation: Isotherms of dehydrated jackfruit were measured at 30, 45 and 60°C by the static gravimetric method over a range of relative humidity from 7-75%.

Findings: The isotherms exhibited Type III behaviour and a crossing occurred at 0.65 Aw at 45°C and 60°C. GAB showed to be the most suitable model for describing the relationship among equilibrium moisture content, relative humidity and temperature of the dehydrated jackfruit.

Conclusion & Significance: GAB model could therefore be used to plan and evaluate storage conditions and moisture regime in the drying and handling of dehydrated jackfruit and is valuable information considered useful for processors. Corresponding to GAB, it is recommended that the monolayer moisture content that must be attained for the dehydrated jackfruit is 8.6403, 7.3869 and 6.2294% at 30, 45 and 60°C, respectively, to afford the longest time with minimum quality loss at a given temperature.

riatabinas94@gmail.com