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PH—Postharvest Technology: Thermodynamics of Moisture Sorption in Sesame Seed

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Abstract

Experimental data on the sorption isotherms of sesame seed were used to determine the thermodynamic functions (heat of vaporisation, spreading pressure, net integral enthalpy and entropy). The heat of vaporisation decreased with increase in moisture content and approached the latent heat of pure water at moisture content between 18 and 21% dry basis. The spreading pressure increased with increase in water activity and was not significantly affected by temperature. Net integral enthalpy decreased with increase in moisture content, and became asymptotic as the moisture content of 12% was approached. Net integral entropy decreased with increase in moisture content to a minimum value of 0·138 J $kg^{-1}K^{-1}$ at moisture content of about 3·7%. It then increased with moisture content to a maximum of about 0·63 J $kg^{-1}K^{-1}$ at about 12% moisture content and thereafter, remained nearly constant.

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