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Moisture sorption thermodynamic properties and shelf life stability of salted tropical freshwater catfish (*Heterobranchus bidorsalis*)

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The catfish (*Heterobranchus bidorsalis*) is among the most commercially important freshwater fish species in Nigeria. It is preferred due to low price, its fleshiness, taste and ease of processing. The fish is however highly perishable under tropical ambient conditions. Salting and drying which are widely used processing and preservation methods in Nigeria are used in this study. The effect of salting (0, 5 and 10%) and temperatures (25, 30, 40 and 50oC) on sorption isotherms of catfish were investigated using gravimetric methods. The equilibrium moisture content data were used in the analysis of sorption, applying Clausius-Clapeyron and the Guggenheim-Anderson-de Boer (GAB) equations. The sorption data was applied to 2 packaging materials stored at relative humidity of 80 and 85% and temperatures of 30oC and 40oC. The monolayer moisture contents (2.830-4.958 g H₂O/100 g solid) and surface areas of sorption (99.43–172.72 g H₂O/100 g solid) decreased with increase in temperature and salt content and were higher for desorption than adsorption mode. The net isosteric heats of sorption (22.5–3.9 KJ/mol within 1.0–12.0 g H2O/100 g solid) also decreased with increase in salt content in adsorption mode but increased in desorption mode. The net entropy of sorption (-45.2 to-8.0J/mol within 1.0 to 12.0 g H₂O/100 g solid) increased with salt content in adsorption and was higher than desorption. The storage life of the fish was significantly P<0.05 influenced by relative humidity (RH), water vapor permeability (B) of the packaging films and salting.

Biography

Igbabul Bibiana, an Associate Professor of Food Processing Technology is a PhD holder in Food Science and Technology from the University of Agriculture Makurdi, Nigeria. She is the Deputy Director of Research and Development of the University. She is a member of the Editorial Board of Current Research in Nutrition and Food Science. She has published over 30 articles in peer reviewed journals. She is a member of Institute of Food Technology (IFT) USA, Nigeria Institute of Food Science and Technology and Nutrition Society of Nigeria. She is the co-author of a book in Food Science and Technology.

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