Influence of roasting on the water sorption isotherms of argentinean algarroba (Prosopis alba Griseb) pods.

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RESUMEN:
Prosopis alba is an arboreal legume that occurs naturally in Argentine. Its fruits (algarroba or Prosopis pods) are dried or roasted, ground and then used in foods and feeds. The influence of roasting process on the water sorption isotherms of Prosopis pod flour at three storage temperatures was studied. The equilibrium data for each sorption isotherm were determined by the standard static gravimetric method. Experimental values were fitted to the BET and GAB sorption models. Type II isotherms were obtained according to Brunauer classification. The calculated isosteric heats of sorption (Qs) near the monolayer moisture content were 7.30 and 7.68 kJ/mol for raw and roasted flour, respectively. The results showed that roasting did not significantly change the behavior of the products with regard to water adsorption, although a slight reduction of the tendency to humectation was observed, this being somewhat less spontaneous. In this aspect, the stability of Prosopis flour is similar in the raw and roasted states.

Key words:
Isosteric heat of sorption; Prosopis pod; Roasting; Sorption isotherm.