

Title X-ray Attenuation Coefficients using Polychromatic X-ray Imaging of Pecan Components
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Abstract

Digital X-ray imaging has very good potential for non-destructive quality evaluation of intact pecans. Information extracted from X-ray images requires knowledge of the X-ray attenuation properties of the individual components of pecans, *viz.* nutmeat and shell. Linear attenuation coefficients of pecan components were determined from digital X-ray images taken under polychromatic X-ray beam. Attenuation coefficient varied with X-ray tube peak voltage and sample thickness. Regression models with a value for the coefficient of determination R^2 of more than 0.9 were developed to predict attenuation coefficient of pecan nutmeat at a given voltage and nutmeat thickness. The linear attenuation coefficient of pecan shell was higher than that of nutmeat.