

**Title** Changes in Viscoelastic Properties of Longan During Hot-Air Drying  
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### Abstract

Changes in viscoelastic properties are relevant to indentation of unpeeled longan (*Dimocarpus Longan* Lour.) in the drying process. The objective of this research was to determine the parameters from creep test to characterize viscoelastic properties of longan during a hot-air drying process. During drying with 65 °C hot air, the unpeeled longan was sampled every 2 hours to perform a creep test with a constant stress of 4.4 N/cm<sup>2</sup> using the texture analyzer. Viscoelastic properties, such as retardation time ( $\lambda_{ret}$ ), (instantaneous compliance)  $J_0$ , (retarded compliance)  $J_1$ , (creep compliance)  $J$ , (Newtonian viscosity)  $\eta$ , and modulus of elasticity  $E$  were analyzed using a six element Burger's model. Results showed that  $\lambda_{ret}$  and  $E$  linearly decreased as moisture content decreased, from approximately 70% to a range of 64-57% (w.b.). Then,  $\lambda_{ret}$  and  $E$  linearly increased as moisture content decreased from a range of 64-57% to 11% (w.b.). The  $J$  and  $J_1$  values linearly increased and then linearly decreased as moisture content decreased, yielding a transition moisture content of 64% (w.b.). The  $J_0$  value decreased as moisture content decreased. The  $\eta$  value did not markedly change, thus it did not involve the indentation of dried longan. The moisture content of 64 to 57% (w.b.) was a critical range susceptible to indentation of the longan during drying process.