

## THE MECHANICAL PROPERTIES OF DIFFERENT CULTIVARS DATES AT THREE MATURITY STAGES

ABDULLAH ALHAMDAN, HUSSAIN SOROUR, MAHMOUD YOUNIS & DIAELDIN ABDELKARIM

Chair of Dates Industry & Technology, College of Food and Agricultural Sciences, King Saud University,  
Riyadh, Saudi Arabia

### ABSTRACT

The present study investigated the effect of three maturity stages on the basic mechanical properties of four date cultivars.

Higher hardness values for the four cultivars were found at the *Tamer* stage relative to the *Rutab* stage for all basic mechanical properties. Higher hardness values for the four cultivars at the *Khalal* stage relative to the *Rutab* and *Tamer* stages were found using the compression test. Higher hardness values for the cultivars at the *Khalal* stage relative to the *Rutab* and *Tamer* stages, except for the *Saqie* cultivar at the *Tamer* stage, were found using the penetration test.

According to the compression test, the elasticity modulus and rupture point values for the cultivars at the *Khalal* stage were higher than the values at the *Rutab* stage. The compression test also indicated that the elasticity modulus and rupture point values were higher for the cultivars at the *Khalal* stage than at the *Rutab* and *Tamer* stages.

The longitudinal hardness values for the cultivars at the *Khalal* stage were higher than the values at the *Rutab* and *Tamer* stages. Moreover, the diametrical hardness values were higher for the cultivars at the *Khalal* stage than the cultivars at the *Rutab* and *Tamer* stages.

**KEYWORDS:** Dates, Maturity, Cultivars, Mechanical, Elasticity Modulus