

## Quality characteristics of dehydrated raw Kelulut honey

### ABSTRACT

Kelulut honey was dehydrated at 40, 55, and 70°C up to 84 h in a dehydrator. The changes of its properties and qualities in terms of moisture content, water activity, hygroscopicity, moisture adsorption isotherm, colour intensity, total phenolic content (TPC), viscosity, glass transition temperature (T<sub>g</sub>), surface stickiness, hydroxymethylfurfural (HMF) content, and diastase activity were evaluated. The dehydration process for 18 h between temperatures of 55 and 70°C can safely produce Kelulut honey product with less than 8% moisture content and water activity below 0.6. Similar quality of Kelulut honey dehydrated at lower temperature between 40 and 55°C requires up to 36 h of dehydration. These recommended dehydration conditions were able to increase TPC of honey from 7.86% from its original value for the shorter duration of 18 h and lower dehydration temperature of 40°C and up to 70.9% for the longer duration of 36 h and higher temperature of 70°C. Dehydrated honey was darker, more viscous, and stickier. The increase of HMF content in dehydrated honey at 40 and 55°C up to 36 h was not significant which are at 0 and 5.81 mg/kg honey, respectively, and at 70°C, it was about 80 mg/kg honey. The honey was found to have very low diastase activity ranging from 0 to 0.75 DN, thereby causing its changes to be insignificant during dehydration.

**Keyword:** Moisture content; Water activity; Hydroxymethylfurfural content; Dehydration curv; Total phenolic content