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Rheological analysis of honeydew honey adulterated with glucose, fructose, inverted sugar, hydrolysed inulin syrup and malt wort

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Abstract

The aim of this study was to evaluate the influence of the adulteration agents (glucose, fructose, inverted sugar, hydrolysed inulin syrup and malt wort) on the rheological properties of an authentic honeydew honey. For this reason the honeydew honey and adulterated samples were analysed using steady state (η, thixotropic area), dynamic state (G' and G'') and creep tests (J(max)). The addition of fructose decreased the dynamic viscosity, the malt wort and inverted sugar increased very little the dynamic viscosity while the glucose and hydrolysed inulin syrup increased significantly the dynamic viscosity, respectively. In order to classify the authentic honeydew honey and the adulterated honey samples it was used the Principal component analysis based on sugar composition (glucose, fructose, sucrose, maltose and melezitose) and all the rheological parameters analysed (*η*, *G'*, *G"*, thixotropic area and J_{max}). The results obtained proved that the steady state (η, thixotropic area), dynamic state (G' and G'') and creep tests (J(max)) are a useful tool for detecting the honey adulteration with glucose, fructose, inverted sugar, hydrolysed inulin syrup and malt wort.

Keywords: honeydew honey, adulteration, steady state, dynamic state, creep tests