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

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7
8 **Abstract**

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

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

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