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EFFECT OF ULTRAFILTRATION PROCESS ON PHYSICO-CHEMICAL, RHEOLOGICAL, MICROSTRUCTURE AND THERMAL PROPERTIES OF SYRUPS FROM MALE AND FEMALE DATE PALM SAPS

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Abstract: This study investigates the effect of ultrafiltration process on physico-chemical, rheological, microstructure and thermal properties of syrups from male and female date palm sap. All the studied syrups switched from pseudoplastic rheological behavior ($n = 0.783$) to Newtonian behavior ($n \sim 1$) from 10 to 50 °C respectively and present similar thermal profiles. Results revealed that the ultrafiltration process affects significantly the rheological behavior of the male and female syrups. These differences on rheological properties are attributed to the variation of chemical composition between sap and sap permeate syrups.

Furthermore, the effect of temperature on viscosity of the syrups was investigated during heating and cooling processes at the same shear rate (50 s^{-1}).

This study provides idea of the stability of the syrup by evaluating the area between heating and cooling curves. Actually, the syrup prepared from male sap permeate is the most stable between the four studied syrups.