USE OF OCTENYL-SUCCINATE STARCH AS EMULSIFIER IN FOOD EMULSIONS

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An emulsion is a mixture of two or more immiscible liquids. To avoid the coalescence one component is necessary, an emulsifier. Octenyl-succinate (OSA) starches have been used as emulsifier in beverage emulsions. The main goal of this work was to study the properties of oil-in-water emulsions prepared using various OSA starch concentrations. The emulsions were prepared with 50 vol% of oil phase by continuous stirring for three minutes at 9000 rpm. The oil phase was soy oil and the aqueous phase was a solution of NaCl with concentration 1.0 wt%. The concentration of OSA starch varied between 1 to 10 wt%. Stability at 10 and 25 °C for 24 hour, microscopy and rheology at 10 and 25 °C were analyzed. The stability and the viscosity grow with an increase of OSA starch concentration. The emulsions prepared with 1 and 2 wt% broke after short time, therefore it was not possible to analyze their rheology and microscopy. Emulsions between 3 and 6 wt% of OSA starch showed Newtonian behavior while those prepared between 7 and 10 wt% showed shear-thinning behavior, according to Ostwald-De-Wally model. At low temperature (10 °C) emulsions showed higher stability and viscosity than at highest temperature (25 °C). Microscopy showed that increasing the OSA starch concentration decreases interfacial tension leading to a reduction of the droplets size, 2.0-30 µm for 3 wt% and 0.5-12 for 10 wt% OSA starch concentration. OSA starch can be used as emulsifier in food emulsions and provides desirable characteristics, increasing stability and viscosity.