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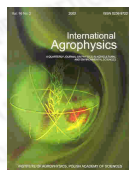
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Comparison between apparent viscosity related to irradiation dose for corn starch and black pepper

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abstract Dose-effect relationship was studied in the rheoviscometric behaviour of gellified suspensions of irradiated corn starch and black pepper, as the variation of the apparent viscosity and the shear stress related to the dose. Irradiation has been performed up to 16 kGy. Black pepper was ground and sieved to three particle sizes to analyse also the influence of particle size on the apparent viscosity variation by dose. The rheoviscometric measurements have been carried out by a rotary viscometer on gellified suspensions of starch and black pepper, into equivalent starch concentration and alkalised suspensions for pepper. For starch, shear stress variation by dose is exponential, where the coefficients depend on the shear rate. For black pepper, the curves of apparent viscosity relation to dose also fit an exponential equation and the influence of particle size is discussed, too. Viscometric behaviour similar to irradiation of both corn starch and black pepper could be attributed to starch degradation at relatively high doses and should be used to develop an identification and control method for the ionising treatment of starch-based food materials.

keywords irradiation, viscometry, dose-effect, starch, pepper