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Physiochemical properties of modified starch under yogurt manufacturing conditions and its relation to the properties of yogurt

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Abstract

The characteristics of three acetylated distarch phosphates with different degree of cross linking (ADP-L < ADP-M < ADP-H) and acetylation were studied under yogurt manufacture conditions, and the properties of yogurts made with these starches were evaluated. The modified starch showed lower solubility and viscosity than native starch (NS), but better resistance to acid and shear force was obtained. The acid milk gels containing modified starches exhibited well-organized and homogenized microstructure, while much denser structure with large aggregates were observed in control and NS samples. The modified starch improved the properties of yogurt more effectively than NS at 0.5% concentration, in terms of yield stress, consistency, apparent viscosity, thixotropy, pseudoplasticity. By increasing the concentration, ADP-M showed increasing positive effect on apparent viscosity, thixotropy, pseudoplasticity, firmness, adhesiveness of yogurt; while no significant difference or adverse effect was seen with ADP-L or ADP-H.

Key words: Starch, cross linking, acetylation, viscosity, yogurt, microstructure

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