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Functionality of OSA starch stabilized emulsions as fat replacers in cookies

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Abstract

The aim of this study was to develop novel semi-plastic shortenings based on starch sodium octenyl succinate stabilized oil-in-water emulsions, as well as to investigate their functionality as fat replacers in cookies.

The effects of incorporation of structured oil (in the form of 50 and 70% oil-in-water emulsions) instead of unstructured oil (50 and 70%) or traditional shortening (100% vegetable fat) in cookie formulation were determined by measuring the rheological properties of cookie dough, textural properties of cookie (break strength), spread, colour, moisture and sensory attributes.

It was determined that vegetable fat replacement with emulsions and unstructured oil affected the decrease in dough elastic modulus and increase in cookie firmness. Cookies containing oil in the form of emulsion expressed higher dough strength and lower cookie spread in comparison to those containing unstructured oil. Although all the cookies were sensory acceptable, the one containing traditional shortening expressed superior sensory characteristics.

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