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Comparison of White Sauce Prepared from Native and Chemically Modified Corn and Pearl Millet Starches

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Abstract : Physical and sensory properties of white sauces prepared from native and chemically modified corn and pearl millet starches were compared. Interestingly, no syneresis was observed in hydroxypropylated corn and pearl millet starch containing white sauce even after nine days of cold storage (4 °C), while other modifications also reduced the syneresis significantly in comparison to their native counterparts. White sauce containing succinylated corn starch showed least oil separation due to its greater emulsion stability. Light microscopy was used to visualize the size and shape of fat globules, and it was found that they were most homogenously distributed in succinylated and hydroxypropylated samples. Sensory results revealed that chemical modification of corn and pearl millet starch improved the consistency, thickness and overall acceptability of white sauces. Viscosity profiles showed that pasting parameters of native pearl millet starch are almost similar to native corn starch suggesting pearl millet starch as an alternative of corn starch. Also, white sauce prepared from modified pearl millet starch showed better cold storage stability in terms of various textural attributes like hardness, cohesiveness, chewiness, and springiness.

Keywords : corn starch, pearl millet, hydroxypropylation, succinylation, white sauce
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