



Comparative Study on Functional Properties of Industrially Important Instant Rice Starch Citrates and Lactates in Mozzarella Cheese

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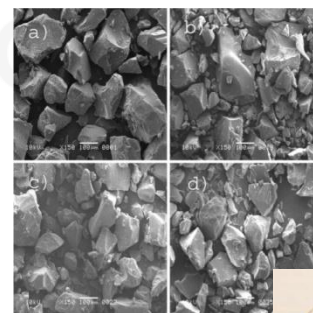
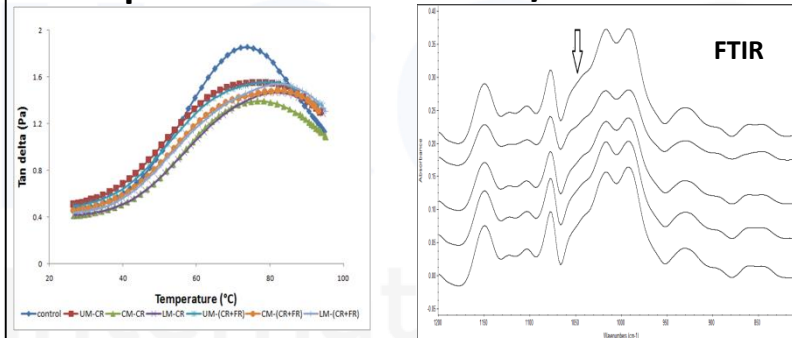
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Background and Objectives

Broken rice is available in abundant quantity in Pakistan as it is a by product of rice milling. However, broken rice kernels are never commercially exploited for the production of native and modified starches in Pakistan. The present study investigated the potential of broken rice kernels for the production of native and modified rice starches which can capture local as well as international market. Also, the present study for the first time in Pakistan will not only develop chemically modified starches but will also convert these into cold water soluble forms using extrusion technique and alcoholic alkaline method.

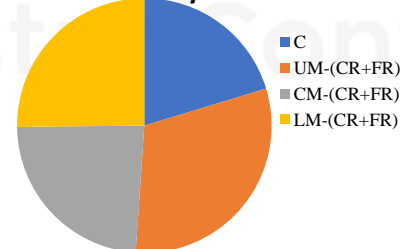
Chemical modification of starch was done by citric and lactic acid at varying concentrations (20% and 40%) to produce starch citrates and lactates. Furthermore, evaluation of dual modified instant starches in terms of their morphological, functional, rheological and structural attributes was performed. Finally, utilization of instant starches as fat and casein replacers (food additives) in imitation mozzarella cheese was performed. And finally the analysis of rheological and functional properties of imitation cheese prepared with instant starches as food additives were studied.

Experimental and Results/Discussion



SEM

Meltability



Conclusion

Both the chemical and physical modification altered the functional properties of rice starch. Instant starches prepared by alcoholic-alkaline method presented better instant viscosity as compared to those prepared by extrusion particularly for citrates. On the basis of results obtained low calorie and cheap imitation cheese can be prepared with improved functional and rheological properties by partially replacing casein and fat with PG/CWS starch citrates and lactates. The proposed chemical modifications utilized less expensive chemicals i.e. citric acid and lactic acid that are GRAS (generally regarded as safe) by FDA as compared to harsh chemicals used for conventional modifications.

Reference

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