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Extruded flour improves batter pick-up, coating crispness and aroma profile

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Abstract

Fried battered foods are widely consumed worldwide. In this study, the influence of the replacement of native wheat flour by extruded flours (7.5 and 15%) subjected to different extrusion severities on chicken nuggets was assessed. Microstructure, pick-up, moisture and fat content, texture, colour, volatile profile, and consumer acceptability were evaluated. Extruded flour replacement resulted in batters with improved pick-up with increasing percentage and severity of extrusion treatment. Extruded flour also contributed to a moisture increase, while oil remained practically unchanged. Textural properties highlighted a higher crispness of batters made with high-severity treatment extruded flours. Volatile compounds analyses revealed lower amount of lipid oxidation (lower rancidity notes) and higher furfuryl alcohol content (pleasant aroma and darker crust) in fried batters containing extruded flour. Consumers testing showed that batters made with intermediate-severity treatment extruded flour presented the best acceptability. These results confirm that extruded flour inclusion improves the quality of deep-fried batters.

Keywords: batter; extrusion; coating; pick-up; texture; aroma; volatile

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