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Formulation of value added crackers using defatted coconut flour and evaluation of its quality parameters

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The current food market shifts towards the development of healthy snacks. Crackers are popular as healthy snacks and a good source to enhance the nutritional value by incorporating natural ingredients. In the present study, dietary fiber content of the crackers was improved by incorporating defatted coconut flour (DCF) which is the whitish defatted kernel residue left in the virgin coconut oil (VCO) extraction process. Palm oil was replaced with VCO for cracker preparation. The chemical and functional properties of DCF and all-purpose wheat flour (WF) were studied. Crackers were prepared by incorporating DCF into WF at 10, 20, 30, 40% (w/w). Sensory evaluation was conducted using a 5-point hedonic scale with 21 panellists evaluating the crackers based on color, crispiness, texture, taste and overall acceptability. Physico-chemical characteristics and shelf life of the samples were evaluated after packing in triple laminated Aluminum foil and stored under ambient conditions. DCF was characterized with significantly higher crude fiber (17.69%), protein (22.10%) and mineral content (6.17%) than WF. The water holding capacity, bulk density and oil holding capacities of DCF were significantly higher than WF ($p<0.05$). Based on sensory results crackers produced with up to the level of 30% DCF were selected for further analysis. All the prepared crackers had significantly higher ($p<0.05$) protein, mineral and fiber contents compared to the control (100% WF). As the concentration of DCF was increased, spread ratio and weight of the crackers increased while thickness and puffiness of the crackers were decreased. Although cracker samples showed good acceptability at the beginning, their keeping quality decreased with the increasing level of defatted coconut flour. The results revealed that up to 20% (w/w) DCF can be incorporated in formulation crackers without compromising the physico-chemical and sensory attributes. The outcome of this study demonstrates the potential for industrial exploitation of DCF through processing into healthy snack food items such as crackers.

Key words: Crackers, defatted coconut flour, dietary fiber, spread ratio virgin coconut oil

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