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Evaluation of nutritional and antioxidant effect of carrot pomace powder in cookies

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Enormous quantities of byproducts are produced by food processing industries that are growing very fast in most of the countries across the world. During juice extraction from carrot, large amount of byproduct called carrot pomace is obtained which is not properly utilized and results in environmental pollution. This residue is rich in fiber, uronic acids, neutral sugars, carotenoids and phenolic compounds. Due to rich nutritional profiling and strong scavenging ability, carrot pomace powder was incorporated in cookies to improve their shelf life. Cookies with carrot pomace powder were prepared at different concentrations (5, 10 and 15%). Primarily, chemical properties of carrot pomace powder were determined. Consequently, CPP cookies were analyzed for chemical (moisture, protein, ash, fat, SDF, IDF and TDF) rancidity (free fatty acid, peroxide value and saponification value) physical (diameter, thickness, breaking strength and spread factor) and organoleptic (color, taste, flavor, texture and overall acceptability) parameters at storage interval of 0, 15, 30 and 45, 60, 75 and 90 days. The results showed that CPP had high amount of dietary fiber (42.48 g/100 g), total phenolics (72.02 mg TAE/100 g) and beta-carotene (3.42 mg/100 g). Treatment effects had highly significant effect on chemical, rancidity, physical and organoleptic parameters. During storage of 90 days, moisture of CPP cookies significantly increased while other physicochemical parameters had non-significant effect. Rancidity (FFA, PV and SV) parameters of cookies significantly increased during storage and T3 showed less increase as compared to control cookies. The highest supplementation level (15%) significantly decreased the quality of cookies. Overall sensory quality showed that panelists liked the cookies containing 10% carrot pomace powder. In conclusion, CPP may enhanced both nutritional and antioxidant properties of cookies.

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