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ANTIOXIDATIVE PROPERTIES OF GLUTEN-FREE CRACKERS BASED ON CHICKPEA FLOUR AND PUMPKIN SEED OIL PROCESSING BY-PRODUCTS

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During the digestion process antioxidant compounds could be released from food matrix, as well as transformed into other compounds with lower bioaccessibility due to interaction with other constituents such as fibers, proteins, and polysaccharides. To produce beneficial effects bioactive compounds should be available for absorption once the whole digestive process has occurred. Since the utilization of chickpea flour and pumpkin seed oil byproducts results with high protein and fiber products, this examination was conducted to determine antioxidant activity and potential benefit effects to human health. Five different formulations were produced where Control sample contained 100% chickpea flour, while in other formulations pumpkin seed press-cake flour (virgin (VF) and cold pressed (CF)) were used at two substitution levels (20 and 35%, w/w). After preparation of gluten-free crackers, in vitro digestion was carried out (cephalic, gastric, and intestinal phase simulated with enzymes, temperature and pH control). Before and after digestion protein content, electrophoresis, antioxidative tests and total phenolic content was determined. Obtained results showed that antioxidant activity, as well as total phenolic content increased after conducted in vitro digestion in all samples. Compared to Control sample, higher values of mentioned parameters are noticed. Furthermore, electrophoresis and protein examination show the breakdown of proteins into smaller molecular weights. From obtained results it could be concluded that in vitro digestion of prepared cookies resulted with higher antioxidant activity, which implies on potential benefits of consuming this type of product.

Keywords: In vitro digestion, Antioxidants, Crackers, Chickpea, Pumpkin seed oil by-products

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