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Importance of introducing pumpkin seed powder from a microbial and nutritional standpoint in the biscuit industry

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ABSTRACT

The study results showed the possibility of introducing pumpkin seed powder into baked goods due to its effective antioxidant compounds and inhibitory capacity against pathogenic microbes. Using a 1.5% alcoholic extract significantly increased the inhibition diameters to 31 mm against Staphylococcus aureus compared to a 1% concentration, while the inhibitory effectiveness decreased to 10 mm for Pseudomonas aeruginosa. The antioxidant effectiveness results showed activity at a 1.5% concentration of the alcoholic extract due to the presence of phenolic compounds, tannins, flavonoids, and glycosides, which were identified using GC-MS with over 30 peaks in pumpkin seed powder. Given its high protein content of 16.4%, fat content of 46%, fiber content of 15.13%, and low moisture content of 4.5%, along with being gluten-free, it was introducing into biscuit production. Sensory evaluation results indicated that the best treatment was the second one with half the replacement ratio in terms of texture, taste, color, and spreadability, showing consumer acceptance of this product. Therefore, the current study aimed to find a healthy alternative to seeds for making beneficial and healthy foods. Baked products can be made from pumpkin seed flour due to its ability to enhance sensory properties and quality, in addition to the presence of active compounds in pumpkin seeds that increased the functional and nutritional properties of food products.