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Nutritional, Sensory and Shelf Life Studies of Cookies Containing different Levels of Chia (*Salvia hispanica* L.) Seed Flour

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Abstract—*Functional foods have gained prominence in the market and continue to grow. Progressive research to identify their properties and application, coupled with public interest and consumer demand are necessitated. Chia (Salvia hispanica L.) seeds are valued as food, and neutraceutical. The seed possesses several functional properties like water-holding capacity, oil-holding capacity, solubility, viscosity, emulsion stability and foaming stability, which prove its potential in food formulations as functional ingredient. In this study, cookies were prepared by substituting refined wheat flour with chia seed flour with at 5% (C-5%), 10% (C-10%) and 15% (C-15%) levels of incorporation and studied for their physical, chemical and sensory quality attributes. Increased hardness with decreased diameter and spread ratio were recorded. Overall sensory scores slightly reduced with increased levels of substitution of flour, but were within acceptable levels. Increased substitution of chia flour considerably increased protein, fiber, omega-3 fatty acid and micronutrients contents and as compared to control cookies. Nutritional and sensory attributes indicated that C-10% cookie sample was the best substituted samples. This optimized cookie had 7.2% protein, 1.15% ash, 5.52% fiber and 96.64 mg/100g Ca. Omega-3 was found to have increased in chia incorporated cookies with the sensorial optimized C-10% had 1.71mg/100g content of it. TPC was also higher (1210.1 µg GAE/g) in C-10% than the control sample (865.8 µg GAE/g). The substituted cookie was sensorily and microbiologically stable till 60th day in poly propylene pouches at room temperature.*

Keywords*: Novel food, Functional food, Chia seeds, Cookies, Omega-3 fatty acids, Total phenolic content.*

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