

Production of Cookies Using Sweet Potato Starch (*Ipomoea batatas*), Rice Flour And Sunflower Seed Oil And Determination Of The Scavenging Activity Of The Cookie.

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The study was conducted to investigate the potential of incorporation Sweet potato (*Ipomoea batatas*) starch as the main ingredient, incorporation with Rice flour and Sunflower seed oil as other ingredients in development of nutritional cookie. Sweet potato contains carbohydrates, proteins, vitamins and minerals plus antioxidant properties. Sunflower seed oil is a high nutritional oil which is extracted from sunflower seeds and the oil contains vitamin E and Omega 6 which promote the skin health.

The main objective of this research was producing cookies using all the ingredients which are Sweet potato starch, Rice flour and sunflower seed oil and the evaluate nutritional content, microbial activities, shelf life and antioxidant properties. The methodology of the production of sweet potato cookie contains four main steps.

Sensory evaluation was conducted for the developed three formula by 30 untrained panelists using 10-point Hedonic scale on overall appearance, overall texture, odor, color, sweetness, roasted flavor, firmness, crunchiness, smoothness and overall likeness. Results were analyzed using Freedman non-parametric test (MINITAB). Cookie with high sweet potato starch concentration than the rice flour was selected as the most preferable healthy cookie sample out of the three samples. It was further analyzed under proximate criteria revealing a 0.91% total ash, 0.85% water-soluble ash, 0.90% acid-soluble ash, 1.1% protein, 0.86% crude fiber, 38.1% fat and 57.28% carbohydrate by mass. DPPH (2,2-diphenyl-1-picryl-hydrazyl-hydrate) Assay was conducted to determine the scavenging activity of the cookie. The method was based on the scavenging of DPPH by antioxidants, which upon a reduction reaction decolorizes the DPPH methanol solution. The assay measures the reducing ability of antioxidants toward the DPPH radical. Tests were conducted in triplicates to increase the accuracy of the results. The inhibition rate of the sweet potato cookie was gradually increased with the concentration and the IC50 value of the Sweet potato cookie was 5.174 µ/ml. The lower IC50 value means high scavenging activity. Therefore, Sweet potato cookie has higher scavenging activity (5.174 µ/ml) compared to Ascorbic Acid (16.04$\pm$3.14 µ/ml). According to the results, the cookie contains antioxidant agents which important to the health. it showed antioxidant activity of the Sweet potato starch. Total Coliforms, Fecal Coliforms and *E. coli* analysis showed the quality of the Sweet potato cookies. Analyzing moisture content, peroxide values and microbial analysis (total plate count, yeast and mold count) resulted in counts which compares with ISO and USDA standards and shelf life attributes for three weeks suggesting the product as shelf life stable for three weeks without addition of natural and artificial preservatives.

Biography

Vishmi Saranga Rathnayake has completed her degree at the age of 24 years from Horizon Campus, Malabe, Sri Lanka.

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