Development and quality evaluation of spice incorporated processed cheese

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Processed cheese is a versatile dairy product popular for its convenience and unique flavor profile. Incorporating spices into processed cheese offers an opportunity to enhance sensory and nutritional attributes while meeting consumer demand for innovative spiced products. This study aimed to develop and evaluate spice-incorporated processed cheese, focusing on sensory attributes, proximate composition, physicochemical properties, and physical characteristics to enhance its flavor and nutritional profile. Preliminary trials were conducted to choose the best spice combination for the processed cheese. Accordingly, two spices were selected (black pepper, hot pepper) and blended in each with three concentrations: black pepper 0.33%, 0.67%, 1% and hot pepper 0.16%, 0.33%, 0.5% (W/W %) to select the best concentration and the best spice to incorporate. Processed cheese was prepared following the standard protocol with added major and minor ingredients: natural cheese, emulsifiers, food preservatives. The samples were evaluated for appearance, color, odor, taste, mouth feeling, spice taste, aftertaste, texture, nature and overall acceptability using 30 semi-trained panelists utilizing a seven-point hedonic scale. The most accepted sample: hot pepper incorporated 0.5% was further evaluated for analytical tests, including proximate, physicochemical, microbiological and sensory evaluation over a 4-week storage period under refrigerated conditions. Proximate analysis of the final product revealed that the product contained 30% of fat, 42.72% of protein, 42.68% of moisture, pH changed from 6.07 to 6.19 and titratable acidity from 0.20% to 0.15% over the storage period. Microbial tests confirmed the absence of *Escherichia coli* (0.00 cfu/g) and a negligible amount of coliform (1.66 cfu/g), yeast (13.33 cfu/g) and mold (1.66 cfu/g) growth. The quality assessments demonstrated that the product remained at a consumable level, indicating that the product can be stored at 4°C for up to 4 weeks. The study revealed that an innovative, nutritious processed cheese can be prepared by utilizing spices available in Sri Lanka.

Keywords: *Processed cheese, Hot pepper, Sensory evaluation, Proximate composition, Consumer acceptance*

Acknowledgements: This work was supported by Pelwatte Dairy Industries (Pvt.) Ltd.