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Effect of microcapsules of Chinese green tea extract *(Camelia Sinensis)* on the quality attributes physicochemical properties, antioxidant activity, and shelf life extension of fresh cheese

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The application of microencapsulation of green tea polyphenols in food formulation is a new approach which is gaining a growing interest as prior studies failed to maintain green tea bioavailability when directly incorporated in food products. There has been also a report of transfer of coloration to the products used. Considering the recent interest in plant polyphenols as an agent in modulating some non-communicable diseases, the present work aims to formulate novel encapsulates of green tea extracts that can be used as food supplements, conserving all their beneficial properties but reducing potential degradation and unwanted taste. Microcapsules of Chinese green tea extracts (GTE) were introduced in the manufacture of fresh cheese as a natural way to enhance cheese nutritional properties, and lengthen its shelf-life. Physico-chemical characteristics, colour and texture parameters, antioxidant activity, and anti-microbial properties upon 30 days of storage at 40C were studied. The use of coating material considerably reduced the green colour appearance in the bio-fresh cheese, which was more pronounced in cheese fortified with non-encapsulated GTE. Addition of GTE microcapsules slightly induced a decrease in pH and moisture content in cheese. No significant differences regarding dry matter, fat, and total protein content, were observed between cheese fortified with microcapsules of GTE and control. The addition of GTE microcapsules significantly increased the total polyphenol content and antioxidant activity in cheese samples. Microbiological assays revealed that samples fortified with encapsulated GTE exhibited antimicrobial properties by delaying the growth of pathogenic microorganisms including aerobic mesophilic, psychrotrophic bacteria, enterobacteriaceae, coliforms, E. coli, molds and yeasts. Consequently, cheese enriched with encapsulated GTE had longer shelf-life than plain cheese.

Biography

Awa Fanny Massounga Bora is a Gabonese PhD fellow in Food science at the Northeast Agricultural University in China, and master of engineering in Food Science and technology from the same university. She has authored and coauthored papers in reputed journals such as Food research international, LWT food science and technology, food bioscience etc. Her research involves the study of micro encapsulation of bioactive compounds and probiotics organisms.

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