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Extended Abstract

Effect of Green Tea and Moringa Leave Extracts Fortification on the Physicochemical, Rheological, Sensory and Antioxidant Properties of Set-Type Yoghurt

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Abstract

The effects of co-production of green tea (Camellia sinensis L) or Moringa oleifera leaves extracts with set-type yogurt on the physicochemical, rheological, and sensory and antioxidant properties of the produced bio-yoghurts were investigated. Plant extracts were subjected to GC-MS analysis in order to identify the major compounds. The analysis revealed the presence of 21 and 27 major compounds in green tea and moringa leaves extracts respectively. Most of these compounds pose different biological roles. From the preliminary sensory study of testing wide range (0.1-1.5%, w/w) of both plants extract in yoghurt trails it was concluded that the best chosen concentrations were 1% and 0.9% of green tea and moringa extracts respectively. The chemical analysis of plain and bio-yoghurts (green tea or moringa) showed no differences in composition in regard to proteins, fat, and total solids as it were amounted to 3.75 ± 0.15%, 3.65 ± 0.03% and 14.45 ± 0.15% respectively. The pH decreased during the production leveled to 4.60 ± 0.05 after incubation while it was not significantly changed during storage whereas, titratable acidity showed invers relation increased to be 0.70 ± 0.02% after production and 1.1 ± 0.05% at the end of storage. Fortification of both extracts at tested percentage did not exhibit any suppression effect against starter culture meanwhile; both extracts had stimulated the growth. In general, syneresis values (%) showed to increase in all the treatments up to 15 days of storage. The green tea found to improved syneresis as low values were recorded in green tea yoghurt in compared to plain yoghurts and moringa yoghurts which showed the highest syneresis values. No significant changes in viscosity and firmness between plain and plant fortified yoghurts were observed meanwhile, addition of green tea extracts improved consistency. The color showed a significant difference of color between different kinds of yoghurts. Addition of plant extracts significantly enhanced total phenolic content in yoghurt by 100% moringa yoghurts and 244% green tea yoghurts compared to plain yoghurts thus reflected as antioxidant (DPPH inhibition %) in yoghurt dramatically improved. Further, the effect of green tea and moringa leaves extract on sensory attributes were also discussed.

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