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Phenolic and flavonoid contents and antioxidant capacity of green tea incorporated ice cream

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World famous best quality green tea is made by unfermented leaves of *Camelia senensis*(L) Var. *Chinensis*. Green tea has become widespread globally due to its valuable health benefits. Most of the health benefits are due to the availability of polyphenols in green tea. This study was conducted to determine total phenolic content (TPC), total flavonoid content (TFC) and total antioxidant capacity (TAC) of green tea incorporated ice cream and to determine the content of green tea to be added into the ice cream with best flavor, nutritional and medicinal values.

Almost all the commercially-grown tea cultivars in Sri Lanka originate from var. *Assamica.* Good quality green tea powder cannot be produced from var. *Assemica* due to its higher astringent compounds. According to the results of a sensory evaluation, green tea powder with low astringent compounds, manufactured from tea flushes (two leaves+bud) of var. *Assemica* TRI 4047 grown under shade with freeze drying technique was used as the ingredient to produce green tea ice cream. Consumer preference for green tea ice cream which was prepared with different amounts of green tea powder (5, 10, 15 and 20 g) was determined by the hedonic test. TAC of green tea ice cream was determined by ferric reducing antioxidant power (FRAP) assay. Colorimetric methods were used to determine TPC (Folin-Ciocaltue) and TFC in green tea ice cream.

The results revealed that, in terms of colour and flavor, 15 g (500 mL of fresh milk, 125 mL of whipping cream, 150 g of sugar and 3 egg yolks) was the most suitable amount for producing green tea ice cream. Significantly higher TAC (757.9±11.0 mg TE/100 g FW), TPC (324.3±13.8 mg GAE/100 g FW) and TFC (3.1±0.02 mg RE/ 100 g FW) were observed in green tea incorporated ice cream (with 15 g green tea powder) when compared to normal ice cream (without green tea powder). TAC, TPC and TFC values increased with increased concentrations of green tea powder in the ice cream. The results suggested that green tea ice cream could be considered as a value added healthy food.

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