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Development of a functional tea (*Camellia sinensis* L.) blend rich in phenolics and antioxidants

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Functional tea blends are recently popularized because of their wellness properties for better functioning of the body. During the COVID 19 pandemic, demand for black tea and green tea has been grown up due to their health benefits; especially, antiviral and immunity-boosting properties. Therefore, the present study was undertaken to find out the best blending ratio of black and green teas in order to make a functional tea blend rich in phenolics and antioxidants. The studied blends were prepared with black tea: green tea; 1:1, 1:2, 2:1, 1:3, 3:1 and 2:2 ratios. Among the six different blends, the premier functional tea blend was determined based on its phenolic content and antioxidant capacity. Total phenolic content (TPC) and total antioxidant capacity (TAC) in both methanolic and aqueous extracts of the functional tea blends were determined by using the Folin-Ciocalteu method and ferric ion reducing antioxidant power (FRAP) assay, respectively. Among aqueous extracts of tested tea blends, the highest TPC was recorded in the blend made up with a 1:2 ratio of black and green tea (111.06 ± 4.83 mg GAE/ g DW), whereas the lowest TPC was recorded in the blend having a 3:1 ratio of black and green tea (7.82 ± 0.98 mg GAE/ g DW). The total phenolic content of functional tea blends in methanolic extracts was not statistically ($P > 0.05$) significant. Similarly, aqueous extracts of the 1:2 (black tea: green tea) blend recorded the significantly highest TAC (637.15 ± 29.75 mg TE/ g DW), and the same blend also showed significantly the highest TAC in methanolic extracts (273.07 ± 2.60 mg TE/ g DW) as well. The lowest TAC in the methanolic extract was observed in the 3 black tea: 1 green tea (225.16 ± 4.39 mg TE/ g DW) blend. The lowest TAC in the aqueous extract was recorded in 2 black tea: 1 green tea (310.87 ± 21.84 mg TE/ g DW) blend. The findings of this study conclude that the blend with 1 black tea: 2 green tea is rich in TPC and TAC. Therefore, it would be ideal to develop as the premier functional tea blend rich in phenolics and antioxidants.

Keywords: Antioxidant capacity, black tea, functional tea blend, green tea, phenolic content

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