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Variation in total polyphenolic content, water-soluble solid content, aroma and taste of Ceylon black teas of different climatic regions

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Sri Lankan black teas are classified as high-grown, medium-grown and low-grown based on their geographical origin. There are seven climatic regions. Nuwara Eliya, Dimbulla, Uva and Uda Pussallawa in high grown area, Kandy in medium grown area, Ruhuna and Sabaragamuwa in the low-grown area. The main objective of this study was to analyze the total polyphenol content, Water Soluble Solid Content, Aroma and taste in unblended Sri Lankan black teas collected from different factories representing different tea growing regions and FBOP, BOP and BOPF grades. Total polyphenolic content TPP ISO 14502-1 standard method, Water Soluble Solid Content WSS Refractometer Method and taste done by a tea taster were determined for each sample. TPP content of the Dimbulla region varied from 13.58 ± 0.65 % to 16.51 ± 1.57 . WSS content varied from 33.50 ± 0.03 % to 37.6 ± 0.02 %. Average taste scores varied from 4.48 ± 0.81 to 5.12 ± 0.11 . TPP content of the Nuwara Eliya region varied from 17.55 ± 1.33 % to 17.92 ± 0.63 %, and WSS content varied from 34.80 ± 0.01 % to 43.60 ± 0.02 %. The average taste score varied from 5.75 ± 0.53 to 6.25 ± 0.10 . TPP content of the Uva region varied from 13.56 ± 1.13 % to 16.91 ± 1.25 %, and WSS content varied from 33.10 ± 0.02 % to 42.50 ± 0.09 %. The average taste score varied from 4.24 ± 0.36 to 4.72 ± 0.11 . TPP content of the Uda Pussellawa region varied from 12.45 ± 1.29 % to 16.06 ± 2.57 %, WSS content varied from 30.40 ± 0.01 % to 34.0 ± 0.02 %. The average taste score varied from 4.20 ± 0.46 to 4.68 ± 0.11 . TPP content of the Kandy region varied from 14.27 ± 1.07 % to 17.03 ± 2.10 %, and WSS content varied from 33.60 ± 0.02 % to 39.30 ± 0.07 %. The average taste score varied from 3.92 ± 0.23 to 4.28 ± 0.30 . TPP content of Ruhuna region varied from 15.57 ± 0.56 % to 16.77 ± 1.04 %, WSS content varied from 26.80 ± 0.04 % to 44.10 ± 0.05 %. The average taste score varied from 3.80 ± 0.14 to 4.00 ± 0.35 . TPP content of Sabaragamuwa region varied from 14.53 ± 2.02 % to 16.62 ± 1.37 %, WSS content varied from 31.50 ± 0.04 % to 40.20 ± 0.05 %. The average taste score varied from 3.80 ± 0.20 to 3.92 ± 0.23 . BOPF-grade teas of every region showed the highest mean value of water-soluble solid content. Nuwara Eliya region showed the highest mean values of total polyphenol content and highest mean values of taste score among other regions. FBOP and BOP grades of the Nuwara Eliya region showed the highest mean values of water-soluble solid content among other regions.

Keywords: Black tea, Tea taste, Total polyphenol, Water soluble solid

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