

Phytochemical screening and bacteriological assay of tea samples from upcountry and low country Sri Lanka

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Tea is one of the most important industries which significantly contribute to the gross national product (GNP) of Sri Lanka. In order to investigate the health effects of drinking of Sri Lankan black tea samples, antimicrobial activity of extracts of BOP (upcountry), BOP (lowcountry), BOPF (upcountry), BOPI (low-country), Dust (upcountry), and Orange Pekoe I (lowcountry) was screened against Gram (+) Methicillin resistant *Staphylococcus aureus* (MRSA) and Gram (-) *Escherichia coli*. Out of the tea samples tested all black tea hot water infusions showed antibacterial activity against MRSA on agar plates incorporated with different dilutions. However, no antibacterial activity was observed against *E. coli*. Comparatively, upcountry tea samples had a significantly higher inhibitory activity against MRSA than low country tea. Antibacterial activity of tea samples against MRSA was further carried out using sequential Soxhlet extracts of pet-ether, chloroform, ethyl acetate and ethanol of tea samples in order to investigate which solvent fraction has highest antibacterial activity. Ethanol and ethyl acetate extracts of the tea samples had higher antibacterial activity than the other extracts and ethyl acetate extracts showed highest inhibitory activity against MRSA (at 0.05 probability level). Analysis of phyto-chemicals of Soxhlet extracts of tea showed that all tea samples were found to be the same. Alkaloids, steroids, sterols and triterpenoids, cardiac glycosides, flavonoids and polyphenols were present in all tea samples tested, regardless of the geographical region. From the fractions separated, flavonoids showed considerable inhibitory activity compared to alkaloids and cardiac glycosides.

Key words: antibacterial activity, *E. coli*, MRSA, phytochemicals, Soxhlet extracts

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