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Chromatographic Fingerprint Analysis of Methanolic Extract of Camellia sinensis Linn. Leaves

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Abstract : Background: The plant Camellia sinensis (Theaceae) is an evergreen shrub indigenous to Assam (India) and parts of China and Japan. Traditional Chinese medicine has recommended green tea for headaches, body aches and pains, digestion, enhancement of immune defense, detoxification, as an energizer and to prolong life. The leaves have more than 700 chemical constituents, among which flavanoids, amino acids, vitamins (C, E, K), caffeine and polysaccharides. Adulteration and substitution may affect the quality of formulation containing tea leaves. Standardization of medicinal preparation is essential for further therapeutic results and for global acceptance. Hence, chromatographic fingerprint profiles were carried out for establishing the standards. Materials and methods: TLC studies for methanolic extracts of the leaves of Camellia sinensis were carried out in a new developed solvent system, Toluene: Ethyl acetate: Formic acid (7:3:1). TLC plates were dried in air, visualized in UV at wavelengths 254 nm and 366 nm and photographed. Results: Results provide valuable clue regarding their polarity and selection of solvents for separation of phytochemicals. Fingerprinting of methanolic extract of Camellia sinensis leaves revealed the presence of various phytochemicals in UV at 254 nm and 366 nm. Conclusion: Fingerprint profile is quite helpful in setting up of standards and thus to keep a check on intentional/unintentional adulteration. TLC offers major advantages over other conventional chromatographic techniques such as unsurpassed flexibility (esp. stationary and mobile phase), choice of detection wavelength, user friendly, rapid and cost effective.

Keywords : Cammelia sinensis Linn., standardization, methanolic extract, thin layer chromatography
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