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Implementation of Metabolomics in Conjunction with Chemometrics for the Dentification of the Differential Chemical Markers of Different Grades of Sri Lankan White, Green and Black Tea: Camellia Sinenesis L.

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Abstract : In the current study, UPLC-MS/MS combined to chemometrics were applied on seven Sri Lankan tea grades; Orange Pekoe, Flowery Pekoe, Broken Orange Pekoe Fannings, Broken Orange Pekoe black tea, green tea, silver tips and golden tips white tea grades for their comprehensive metabolic profiling. Certain metabolites, namely, Theasensinin C and E, theaflavin and theacitrin appeared to be the main chemical markers of black tea type, catechin, epicatechin, epigallocatechin, methyl epigallocatechin were the main discriminatory markers of green tea type, while theanine, oolongotheanine and quercetin glycosides were the main chemical markers of white tea type. Theogalloflavin, epigallocatechin and flavonoid glycosides were the main down-accumulated metabolites while theaflavin gallate, and N-ethyl pyrrolidinone epicatechin were the chief up- accumulated metabolites between whole and broken black tea leave grades while puerin A and C and gallic acid was the main down- accumulated metabolites and N-ethyl pyrrolidinone epicatechin gallate was the main up-accumulated one between broken and fanning black tea grades.

Keywords : tea grading, Sri Lankan tea, chemometrics, metabolomics, chemical markers
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