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Variation of biochemical composition between blister blight resistant and susceptible tea (*Camellia sinensis* L. O. Kuntze) cultivars

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Tea, *Camellia sinensis* L. O. Kuntze, (family – Theaceaceae/ Camelliaceae) is the commercially most important species in the genus *Camellia*. Blister blight (BB) is a leaf disease of tea caused by the fungus *Exobasidium vexans* Masse. The fungus attacks only young succulent leaves which seriously affect the tea production. It is of major economic importance in all tea growing areas of Asia. Use of plant inherent resistance to control the disease would be the best option and hence breeding for BB resistance was identified as high priority, which requires precise markers to select resistant individuals in breeding programmes. The objective of this study was to identify a biochemical marker for BB resistance. The study population consisted of 300 F₁ individuals, derived from a cross between TRI2023 (BB susceptible) X TRI2043 (BB resistant). The F₁ field assessment was carried out using blister blight disease assessment key which was developed by the Plant Pathology Division, Tea Research Institute, Sri Lanka. Three individuals extremely susceptible to BB with blister blight disease index higher than 0.5 (P₁₀-18, P₁₀-16, P₂-19) and three extremely resistant to BB with Blister blight disease index less than 0.1 (P₁₀-40, P₉-20, P₅-8) were selected for this study. Individual catechin levels, caffeine and gallic acid content of the selected individuals were assessed. High performance liquid chromatography was used to analyze catechins, caffeine and gallic acid by following ISO 14502-2:2005(E) standard procedure. Biochemical study on flavan-3-ol, gallic acid and caffeine content, revealed a significantly higher level of epigallocatechin (EGC) in blister blight resistant F₁ individuals (38.40 mg/g) than blister blight susceptible F₁ individuals (23.62 mg/g). There was no significant difference shown between BB resistant and BB susceptible individuals for (+)-catechin, (-)-epicatechin, (-)-epicatechin gallate, (-)-epigallocatechin gallate, caffeine and gallic acid. However, further studies using more individuals from F₁ populations may be necessary to confirm epigallocatechin (EGC) level as a marker for BB resistance.

Keywords: Biochemical marker, Blister blight, catechins, inherent resistance, tea

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