

**IDENTIFICATION OF FACTORS CONTRIBUTING TO
ONTOGENIC RESISTANCE OF TEA (*Camellia sinensis*) LEAVES
TO BLISTER BLIGHT**

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by
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ABSTRACT

Blister blight is the major leaf disease caused by the obligate fungus *Exobasidium vexans* Mese. Only young, succulent leaves and stems are susceptible to blister blight. Mature parts of the tea bush show resistance to the disease even in a susceptible cultivar. The reasons for this ontogenic resistance have not yet well understood. This study aimed at understanding underlying reasons of ontogenic resistance of blister blight in tea with the specific objectives of analyzing the variations of spore germination and leaf physical and biochemical characteristics with leaf age. Healthy tea leaves at five maturity stages (1st, 2nd, 3rd, 4th and 1st mature leaf from the apical bud) of tea cultivar TRI 2024 were used. Effect of the leaf age on the germination of basidiospores of *E. vexans* was studied by artificial inoculation of spores (10^{-6} spores ml^{-1}). Leaf cuticle wax was extracted in chloroform using 10g of each leaf sample. Freeze dried (at minus 40 °C) powdered leaf samples were used for the biochemical analysis. Total polyphenol content of leaves at different maturity stages was determined by colorimetric method using folin-ciocolteu reagent. Leaf caffeine and catechine content was determined by HPLC (High Performance Liquid Chromatography) method. First and second leaf of a tea shoot were thin, soft and dull and had lower wax content while mature leaves were thick, glossy and had higher wax content. First and second leaf showed higher total polyphenol content than other mature leaves. Higher caffeine and epicatechine contents were recorded in resistant mature leaves while reverse was observed for epigallocatechine and catechine. Results of this study suggest that both physical and biochemical components contribute for the ontogenic resistance of tea plant to the blister blight disease. This information would be helpful in developing resistant tea cultivar for blister blight.

Keywords: Blister Blight Disease, *Exobasidium vexans*, Leaf Age, Ontogenic Resistance, Tea