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A preliminary investigation towards developing molecular markers linked to blister blight disease resistance in Camellia sinensis L (Tea)

Exobasidium vexans, pathogen of blister blight leaf disease, is a major threat for tea in Sri Lanka and breeding for blister blight resistance was recognized as a means of reducing the crop loss due to the disease. Tea Research Institute (TRI) has identified 26 tolerant to moderately tolerant clones for blister blight from Sri Lanka and are now aiming to introgress the trait to high yielding clones. In order to aid this breeding task by overcoming various problems associated with conventional breeding, possibilities were explored for using the DNA marker technique, Randomly Amplified Polymorphic DNA (RAPD) for tagging blister blight resistance.

Bulk DNA of three groups of tea, tolerant, moderately tolerant and susceptible to blister blight were assayed for detection of specific markers by using 60 random 10-mer primers in the RAPD-PCR. The 20 primers detected 33 polymorphic fragments and among these, five strong fragments were specific to the tolerant group while 17 (9 strong and 8 faint) were common to tolerant and moderately tolerant groups. Furthermore, there were 2 fragments specific for

moderately tolerant group and 5 were characteristic to the susceptible group. The ability shown by the RAPD technique to differentiate groups of tea clones, tolerant, moderately tolerant and susceptible to the disease blister blight, without time consuming large scale field evaluations, encourages the breeders to explore possibilities of tagging molecular-markers to blister blight resistance and use in marker assisted breeding.