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Screening of tomato (*Lycopersicum esculentum* L.) varieties resistant to anthracnose caused by *Colletotrichum coccodes*

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Anthracnose caused by *Colletotrichum coccodes* is one of the major disease problems in tomato (*Lycopersicon esculentum*) cultivation in Sri Lanka. Currently fungicides are used to control this disease at an alarming scale. However, the use of resistant varieties is feasible, economical, and a reliable method to control the disease. There are about eighteen tomato cultivars available in Sri Lanka which shows differential disease response to this pathogen. Therefore, the current study was focused on developing a method *in vitro* to identify the resistant varieties of tomato to this disease. Studies were undertaken to find whether there was a relationship between varietal resistance/susceptibility and influence of conidia differentiation by leaf exudates of different tomato varieties. Stimulatory compounds which are responsible for conidia differentiation into appressoria were found to be present in leaf exudates of all tested varieties of tomato. Percentage of conidia germination and appressoria formation in leaf exudates of varieties showed significant correlation ($P > 0.05$) with size of the anthracnose lesions developed on leaves. Highest stimulation of conidia differentiation of pathogen was observed in leaf exudates of the variety Rashmi which is highly susceptible to the disease and the lowest stimulation was found in variety Volcano which is highly resistant to the disease. Chemical factors found in Exudates obtained from leaf exudates were separated into ether soluble and water soluble fractions. Chemicals found in water soluble fraction enhanced conidia differentiation more than ether soluble fraction. Results revealed that the stimulatory effect of exudates on conidia differentiation could be used to compare degree of resistance to anthracnose to screen tomato germplasm as an *in vitro* test.

Keywords: tomatoes, anthracnose, *Colletotrichum coccodes*, resistant varieties