

Oral presentation: 93

## Screening of selected invasive plant extracts for antifungal activity against *Colletotrichum gloeosporioides*

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High-quality ornamental plant products are needed for export-scale floriculture. A major barrier to provide high quality products is the wide prevalence of plant pathogenic diseases. *Colletotrichum gloeosporioides* causes diseases in several species of ornamental plants. Use of chemical fungicides can cause undesirable non-target effects and fungal resistance. The invasive plants that threaten natural ecosystems, may serve as an inexpensive source for developing antifungal products that are devoid of the problems associated with synthetic fungicides. We examined the antifungal activity of 36 extracts (6 plants x 2 plant parts x 3 extract solvents) of 6 invasive plants, *Mikania micrantha*, *Tithonia diversifolia*, *Lantana camara*, *Clusia rosea*, *Chromolaena odorata* and *Clidemia hirta* against the pathogenic fungus *C. gloeosporioides* that was isolated from *Dracaena reflexa* leaf spots. PCR and sequencing for molecular characterization of the fungus was done at Genetech, Colombo. All the invasive plants were collected from the Central Province, Sri Lanka. Plants were washed, air-dried and powdered. Each powder was sequentially extracted into *n*-hexane, dichloromethane (DCM) and methanol at room temperature (RT) for 30 min using an ultrasonicator (40 kHz). Removal of solvents on a rotary evaporator gave the respective plant extracts. Each plant extract (2 mg/disc) was screened for antifungal activity against *C. gloeosporioides* using disc diffusion method by incubating for 3-5 days at RT. Standard fungicides mancozeb and propineb (50 µg/disc) served as positive controls. All assays were carried out in triplicate and repeated thrice in completely randomized design. The areas of inhibition were measured and analyzed using one-way ANOVA with Minitab 16. The extracts of *M. micrantha*, *T. diversifolia*, *C. odorata*, *L. camara* and *C. hirta* showed varying degrees of antifungal activity against *C. gloeosporioides* while the extracts of *C. rosea* were inactive. The DCM leaf extract of *M. micrantha* ( $3.42 \pm 0.34$  cm<sup>2</sup>) and the DCM root extract of *T. diversifolia* ( $2.26 \pm 0.24$  cm<sup>2</sup>) displayed the highest area of inhibition; while mancozeb and propineb were  $2.17 \pm 0.14$  and  $1.29 \pm 0.06$  cm<sup>2</sup>, respectively. *M. micrantha* leaves and *T. diversifolia* roots could be potential sources for developing plant-based fungicides to be used in floriculture industry.

**Keywords:** Antifungal activity, *Colletotrichum gloeosporioides*, fungicides, invasive plants, phytopathogens

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