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Secondary metabolites with pesticide activity from plant pathogenic fungi**Kumudini M Meepagala**

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Phytopathogenic fungi produce secondary metabolites that are toxic to host plants. These fungi have evolved to survive in the ecological niche by producing secondary metabolites to compete with other fungi, plants and insects. Thus, these toxins can have various biological activities. As part of ongoing research efforts at USDA, we have investigated some plant pathogenic fungi in search of natural products that can be used as pesticides or can be used as lead compounds in designing such compounds. Phomalactone isolated from *Nigrospora spherica*, a plant pathogenic fungus isolated from *Zinnia elegans* and *Hydrangea macrophylla*, was found to be phytotoxic and mosquitocidal. From the culture medium of *Curvularia intermedia*, $\alpha\beta$ -dehydrocurvularin was isolated as a phytotoxin. *Pyricularia grisea* is a fungus selective to monocots. From the culture broth of this fungus, pyrichalasin was isolated as the phytotoxin. A colony of three fungi was isolated from necrotic leaves of *Basella alba*, commonly known as Malabar Spinach. *Diaporthe eres* was isolated from infected *Hedera helix* leaves. An isocoumarins was isolated from the culture broth of this fungus and found to have phytotoxic and mosquito larvicidal activities. Based on this molecule, several analogs of isocoumarins were synthesized with higher phytotoxic activity. Isolation of active metabolites and synthesis of analogs will be discussed.

Biography

Kumudini M Meepagala has been working in USDA-ARS for over 15 years. She is working on isolation of natural products from plants and fungi that can be used as agrochemicals. She is also involved in synthesis and structure modification of natural products to develop mosquito repellents and larvicidal.

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