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Natural Products for Agriculture Laboratory

Under the direction of
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Research emphasis on morphology of plant pathogenic fungi and strategies to control plant disease by bioactive compounds from herbal plant and marine fungi.
1. Search for Antifungal Compounds from the sponges -derived fungi, soil fungi and herbal plants.
2. Research on biological control of plant pathogenic fungi.

Research Programs

Natural Products of Fungi

Search to explore marine fungi as a source of secondary metabolites. The goal is to isolate novel bioactive substances from fungi cultured from marine sponges in order to discover new structural classes of natural products. We are developing strategies that will maximize the diversity and secondary metabolite production of cultured marine fungi. Using bioassay-guided isolation assists us in the discovery of natural products potent against plant pathogenic fungi.

Biological Control of Plant Pathogens

An additional subject of interest is to develop biological control strategies for managing plant diseases in agriculture. Our projects range from field studies evaluating the success of biological control agents to laboratory experiments evaluating the molecular basis of biological control. Through these projects, we are developing knowledge of the processes by which naturally-occurring FUNGI that live on plant surfaces suppress plant diseases.

Phytochemistry

Search and development of novel antifungal agents from medicinal plants are conducted to find new compounds for using in plant protection and understanding of potential plant defense mechanisms. Development of natural product-based fungicides with low mammalian and environmental toxicity will guarantee food safety, sustainability of Thailand agriculture, and ensure a safe and healthy environment. Discovery, development, and commercial will be undertaken to develop natural fungicide to apply for controlling economic crop diseases with new novel modes of action to decrease the development of chemical resistance.

Publications