



## Seaweeds for Cotton Phytopathogens management

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### Abstract:

Marine macroalgae mainly include different plant species of red (Rhodomelaceae), brown (Phaeophyceae) and green (Chlorophyceae) algae. These macroalgae have not been often regarded as an underutilized bioresource. In agriculture, these plants have been utilized as amendments as bio fertilizers, plant growth regulators and biopesticides. Literature survey reveals that some of the renowned activities are reported from the brown algae for tomato pathogenic fungi, tobacco mosaic virus, cotton wilt and angular leaf spot. Our results showed crude extracts, chlorophyceae (*Caulerpa scalpelliformis*, *Caulerpa veravalensis*, *Ulva fasciata* and *Ulva lactuca*) species were found to inhibit Cotton wilt causing phytopathogen *Fusarium oxysporum* f.sp. *vasinfectum* (FOV) in dose-dependent manner whereas ochrophyta (*Padina pavonica* and *Sargassum wightii*) species did not show any fungicidal activity against FOV. All extracts of *caulerpa veravalensis* were active among them the chloroform extract was highly active at 0.4% whereas 0.8% of hexane and methanol extracts were active against *xanthomonas axonopodis* pv. *malvacearum* (XAM). The chloroform extracts of *C. scalpelliformis* and *Padina pavonica*; methanol extracts of *U. fasciata* and *U. lactuca* were effective against XAM but their activity was not significantly pronounced, as compared to commercial product, bacterimycin. The *gracilaria corticata* tannin extract significantly suppressed the growth of *Fu. oxysporum* (< 90%) than *turbinaria ornata*, *stoechospermum marginatum* (=90%), *sargassum wightii*, *gracilaria fergusonii*, *chaetomorpha medica*, *ulva lactuca* and *Spatoglossum asperum* at 8% concentration. *Stoechospermum marginatum* showed higher growth inhibition activity to *Xanthomonas malvacearum* than *chaetomorpha medica*, *sargassum wightii*, *gracilaria corticata*, *spatoglossum asperum*, *ulva lactuca*, *turbinaria ornata*, and *gracilaria fergusonii*. Emulsifiable concentrations (ECs) were prepared and utilized for cotton phyto-



pathogens in Tamil Nadu, India.

### Biography:

Kitherian Sahayaraj, Ph.D., D.Sc., is a Professor (Associate) and Head at the Department of Zoology, St. Xavier's College of Manonmaniam Sundaranar University and a Director in the Crop Protection Research Centre in the same institution since the June 1998. Sahayaraj Kitherian received his undergraduate, post-graduate and doctoral educations at the Madurai Kamaraj University, India. Over the past 31 years, Dr. Sahayaraj's research efforts have been dedicated to multidisciplinary, integrated approaches to understanding how reduviids distribute and diversify in various ecosystems, and how their adaptive characters can be applied to pest management, especially through bio-intensive pest management. Dr. Sahayaraj has over 210 scientific papers published. He is an internationally recognized expert in many areas of advanced entomology including insect chemical ecology, artificial diet formulation, biopesticide formulation, bio-intensive integrated pest management, bionanomaterial, and insect molecular biology.

### Publication of speakers:

1. Sahayaraj, Kitherian & Dharshini, Lakshmanan & Loko, Laura. (2020). Nutritional fitness of a reduviid predator *Rhynocoris marginatus* (fab.) (Hemiptera: Reduviidae) using biological traits and macromolecules of pests. *International Journal of Tropical Insect Science*. 10.1007/s42690-020-00248-y.
2. Sahayaraj, Kitherian & Kombiah, Poolpandi & Rathi, Jesu. (2020). A chalcone (Pongamol) and phytoconstituents of *Tephrosia purpurea*. *Natural Product Research*. 1-4. 10.1080/14786419.2020.1808640.

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