

2<sup>nd</sup> International Conference on

## PLANT SCIENCE &amp; PHYSIOLOGY

June 26-27, 2017 Bangkok, Thailand

**Bio-molecules induced resistance against *Cucumber mosaic virus* disease in Gherkins (*Cucumis anguria* L.)****Nagaraju N, Kavyashri V V and Venkatesh H L**

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Synthetic chemical based pesticides are extensively being used in agriculture to manage plant diseases particularly plant viruses transmitting through insect vectors because of non-availability of viricides as such. However the vector management through pesticides is the only means of chemical control. However, continuous use of pesticides for the management of vectors of plant viruses cause severe and long term environmental pollution and are even carcinogenic to humans and animals. Furthermore, insect vectors become resistant to many of these chemicals resulted in resurgence of pests. Management of viral pathogens by using organic products viz., plant extracts, seaweed extracts etc., has gained importance. Antiviral effect of seaweed extracts viz., *Euchema spinosum* J. Agardh, *Kappaphycus alvarezii* doty-1, *Kappaphycus alvarezii* doty-2 and *Halymenia durvillae* Bory saint-vincent at 10 ml L<sup>-1</sup>, 4 ml L<sup>-1</sup>, 6 ml L<sup>-1</sup> and 10 ml L<sup>-1</sup> respectively including commercial products viz., Vacciplant and Jingo were tested for their optimum dose under field condition against *Cucumber mosaic virus* (CMV) was determined based on ELISA values of CMV infected gherkin samples during *kharif* and *rabi* 2016. Seaweed extracts *Kappaphycus alvarezii*-1 (4 ml L<sup>-1</sup>) sprayed gherkin plants recorded less mean PDI of 16.65 and 16.06 with an increased mean yield (13.33 t ha<sup>-1</sup>) followed by *Halymenia durvillae* (10 ml L<sup>-1</sup>) with mean PDI (18.34 and 18.98) and mean yield (12.17 t ha<sup>-1</sup>) compared to control with mean PDI (31.77 and 31.96) and mean yield (8.74 t ha<sup>-1</sup>) respectively. The active principle present in these two seaweed extracts is mainly polysaccharides viz., kappa-carrageenan and sulphated galactan respectively. Hypothetically, polysaccharides might have helped in triggering defense by inducing plant hormones/signaling molecules viz., salicylic acid, Jasmonic acid or ethylene by inducing ISR.

**Biography**

Nagaraju N graduated from University of Agricultural Sciences, Bengaluru and has expertise in Plant Virology. He worked as an Extension Pathologist between 1998 and 2010 and has expertise in diagnosis, identification of plant disease and recommending suitable management practices. He is serving in UAS, Bengaluru since 20 years and worked on different plant viruses viz., *Papaya ring spot virus* (PRSV), *Pepper veinal mottle virus* (PVMV), *Cucumber mosaic virus* (CMV), *Tomato leaf curl virus* (ToLCV), *Tomato spotted wilt virus* (ToSPO) and other *Gemini* viruses. He developed integrated management practices for important viruses for sustainable agriculture and were included in University Package of Practice. He is presently working on use of bio-molecules for inducing defense in crop plant against plant viruses.

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