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Simultaneous molecular detection of citrus mosaic virus and citrus greening bacterium by duplex PCR

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Citrus is an important fruit crop in India. It is grown in about 0.50 million ha with an annual production of 0.39 million tones. Citrus decline is a serious problem and has been attributed to many causes, e.g. Citrus tristeza virus, Indian Citrus ring spot virus, Citrus yellow mosaic virus (CYMV), Citrus exocortis viroid and the greening bacterium. The citrus greening bacterium, causing citrus greening disease (CGD), is one of the major factors for citrus decline. The incidence of the disease has ranged from 6-16% in different sweet orange orchards. Citrus yellow mosaic disease (CYMD) caused by CYMV is another important disease, which occurs more commonly in citrus plantations of south India. Both diseases are major constraints to the citrus production. A duplex PCR was developed for the simultaneous detection of *Citrus mosaic badnavirus* (CMBV) and citrus greening bacterium, *Candidatus Liberibacter asiaticus* (*Ca. L. asiaticus*) from sweet orange trees. *Ca. L. asiaticus* restricted to phloem region and can be detected from only the mid rib and petiole of the citrus leaves. On the other hand, CMBV spreads to the tissues of entire leaf lamina. Initially total DNA from individual *Ca. L. aasiaticus* and CMBV infected citrus plants were mixed and both pathogens were detected by PCR. Subsequently, both pathogens were detected from the total DNA obtained after mixing of mid rib of *Ca. L. asiaticus* infected and CMBV infected leaf lamina of the sweet orange. The final adopted multiplex PCR protocol simultaneously detected both pathogens from the total DNA extracted from the midrib of leaves field trees infected by both pathogens. The procedure is cost effective and sensitive and will be highly useful in quarantine certification program.

Biography

Kailash N. Gupta has completed his Ph.D. at the age of 35 years from JMI, A Central University, New Delhi. He is the Assistant Professor cum Scientist of Plant Pathology in Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur-482004, India. He has published more than 15 papers in reputed national and international journals and 25 abstracts, 10 technical bulletin and 25 popular article.

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Evaluation of pollen viability using *in vivo* and *in vitro* test in tuberose

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An investigation on pollen viability in tuberose flowers under both *in vitro* and *in vivo* environment was conducted at the Department of Floriculture and Landscaping, Tamil Nadu Agricultural University, Coimbatore, India during the year 2012- 13. The ten single genotypes *viz*., Calcutta Single, Hyderabad Single, Kahikuchi Single, Mexican Single, Navsari Local, Phule Rajani, Prajwal, Pune Single, Shringar and Variegated Single were used for this study. Among the ten genotypes, Variegated Single showed its superiotity in pollen viability (96.73%) and germination (98.61%) than other genotypes under *in vitro* condition. High level of pollen germination was observed when Phule Rajani was crossed with Hyderabad single, Kahikuchi Single, Mexican Single and Variegated Single under *in vivo*. Likewise, the pollen grain of Calcutta Single, Kahikuchi Single, Navsari Local, Pune Single and Shringar germinated well on the stigma of Variegated Single under *in vivo*.

Biography

P. Ranchana is doing her Ph.D. program in the Department of Floriculture and Landscaping, Tamil Nadu Agricultural University, Coimbatore. She has published more than 10 papers in reputed journals and working as a Senior Research Fellow in the GOI scheme entitled “Validation of DUS testing guidelines for jasmine”. She has attended and presented papers in both national and international conference.

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