Taxonomic study of bacterial pathogens associated with ornamental plants in Assam

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Cultivation and export of floriculture products have received considerable interest in recent years due to the sector's immense potential to generate employment, income and export services. Assam due to its agro – climatic diversity, is a potential hub for cultivation of different ornamental plants. But the floriculture industry is being challenged mostly by different biotic stresses. For effective management of the biotic stress, the causal agents needs be identified, characterized and studied thoroughly. The taxonomic studies on the bacterial pathogen is least reported from Assam and other states of the North-Eastern region of India. The present investigation was made to isolate and determine the taxonomic position of the pathogenic bacterial isolates associated with flowering and foliage ornamental plants of Assam. 32 samples of 20 ornamental plants were collected from three major districts of Assam, viz., Tinsukia, Jorhat and Kamrup. Bacterial growth was confirmed in 18 diseased samples, which were then subjected to pathogenicity test in their respective host crops to satisfy the Koch postulates. Six bacterial isolates, viz., could reproduce the symptoms in their respective hosts, viz.;Gerbera (*Gerbera jamesonii*), Chrysanthemum (*Dendranthema grandiflora*), Anthurium (*Anthurium andreanum*), Marigold (*Tagetes erecta*), Dendrobium (Dendrobium sp) and Tuberose (Polyanthus tuberosa) hence were proven pathogenic to their respective hosts. The morphological, cultural, biochemical and molecular characterization of the bacterial isolates were done. The phylogenetic tree of the bacterial isolates was constructed to determine the similarity with related strains of respective genera. The isolate GE (J) isolated from Gerbera (*Gerbera jamesonii*) was confirmed to be Pseudomonas cichorii, isolate CH(K) isolated from Chrysanthemum (*Dendranthema grandiflora*)was confirmed to be Pseudomonas cichorii as well, isolate AN(K) isolated from Anthurium (*Anthurium andreanum*) was confirmed to be *Xanthomonas axonopodis pv.diffenbachiae*, isolate MA(J) isolated from Marigold (*Tagetes erecta*) was confirmed to be *Pseudomonas syringae pv. tagetis*, isolate DE(J) isolated from Dendrobium (Dendrobiumsp)was confirmed to be Burkholderia gladioli and isolate TU (J) isolated from Tuberose (Polyanthustuberosa) was confirmed to be *Xanthomonas campestris.*

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