Isolation, cloning, characterization and phylogenetic analysis of candidate reference genes from tuberose Polianthes tuberosa

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Tuberose (Polianthes tuberosa) is an ornamental bulbous plant and one of the very important cut flowers in India. Among the commercially grown flowers in India, tuberose occupies a prime position owing to its popularity as a cut flower, loose flower for perfumery as well as a potential source of secondary metabolites. Though it is a very popular flower not much genomic information is available on tuberose. To initiate any gene expression studies in this crop we need to make use of the very popular RT-qPCR methods which has been widely used to analyze expression of candidate genes. The accuracy and reliability of the results using RT-qPCR methods requires the use of stable housekeeping genes as control. In this study we describe the first systematic evaluation of eight candidate reference genes viz., 18S ribosomal RNA (18SrRNA), Ribulose bisphosphate (RuBP), Glyceraldehyde 3 phosphate dehydrogenase (GAPDH), Actin, Coatomer subunit delta (CSD), Peptidylprolylisomerase (PPI), Serine/threonine protein phosphatase, (STPP) and ATP subunit (ATP SE). The transcript abundance of these genes was analysed in eleven different tissues of tuberose plant viz., young leaf, leaf sheath, root, immature flower bud, mature flower bud, open flower, stamen, ovary, stigma, petals and flower tube. Phylogenetic analysis of these sequences revealed high degree of similarity with other monocotyledonous plants which is discussed in this paper.

Biography

Jayanthi M has completed her Under-graduation in Agriculture and her Post-graduation and PhD in Plant Biotechnology under the guidance of Professor M S Swaminathan from University of Madras. She has the experience of working in several institutes like the TBGRI, Trivandrum, IGFRI, Jhansi, CTCRI, Trivandrum, IIOPR, Andhra Pradesh on a wide range of crops like Rauvolfia species, Tylophora indica, Rhododendrons, medicinal plants, oil palm, tuber crops and grasses. She is currently working with ornamentals like Tuberose, Gerbera and Carnation. She has published more than 25 research papers in reputed journals.

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