THE ASIAN JOURNAL OF HORTICULTURE
Volume **8** | Issue 2 | December, 2013 | 478-481

Research Paper

Article history **:**
Received : 06.05.2013
Revised : 08.09.2013
Accepted : 22.09.2013

Efficient and simple procedure for isolation of RNA from pulp and peel tissues of ripe banana

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ABSTRACT : Sensitive techniques of molecular biology, such as identification of differentially expressed genes, transcriptional profiling etc., require a high quality RNA in suitable quantities. Isolation of good quality RNA from banana pulp and peel tissues is troublesome and challenging owing to rich phenolic compounds and polysaccharides that coprecipitate with nucleic acids. Interaction of phenols with nucleic acids leads to oxidation and degradation of RNA making it unsuitable for downstream processes. We have developed a protocol to isolate good quality RNA from banana fruit pulp and peel tissues. This involves two precipitation steps with sodium acetate with 100 per cent ethanol and reducing the precipitation time which led to the reduction in loss of RNA and risk of degradation. The protocol developed is simple, fast and can extract 81.85 and 40.54 µg/g of pulp and peel tissues, respectively. The absorbance ranged from 1.9-2.0 at the ratio of 260/280 indicating very high quality of RNA suitable for molecular analyses. RNA purity was confirmed through reverse transcription-polymerase chain reaction (RT-PCR) by using β-1,3 glucanase primer pair. The clear banding pattern obtained in RT-PCR analysis revealed that RNA isolated through this protocol could be used for further downstream processes.

KEY WORDS : Banana, Ripe fruit, Pulp, Peel, RNA isolation

HOW TO CITE THIS ARTICLE : Backiyarani, S., Uma, S., Saraswathi, M.S. and Saravankumar, A. (2013). Efficient and simple procedure for isolation of RNA from pulp and peel tissues of ripe banana. *Asian J. Hort.*, **8**(2) : 478-481.