An efficient protocol for isolation of functional RNA from peel tissue of different banana (*Musa* spp.) cultivars for gene expression studies on anthracnose development

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Abstract: *Extraction of good quality RNA in larger quantities is a prerequisite for gene expression studies. Existing protocols for RNA extraction from banana pulp tissues were not successful on banana peel tissues as they contain higher concentrations of polyphenols, polysaccharides and latex. The present study developed a new protocol by modifying the existing protocols. The modifications include combining pre-warmed Tris-Borate extraction buffer, incorporation of CTAB in the extraction buffer, incubation in extraction buffer at 65^{o}C for one hour, and a three-day long extraction procedure with phenol, phenol: chloroform (1:1) and chloroform: isoamyl alcohol (24:1) together with centrifugation steps at high speeds (i.e. 12000 – 14000 rpm). Spectrophotometric analysis of the extracted RNA, denaturing agarose gel electrophoresis, cDNA library construction, sequence information of cDNA inserts and RT-PCR confirmed the quality of RNA extracted by the method developed in the present study for gene expression work. Furthermore, it is shown that the developed method is useful to extract good quality RNA from peel tissues of a range of dessert and cooking type banana cultivars.*

Keywords: *cDNA library construction, Colletotricum musae, RNA extraction, RT-PCR*

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