عنوان مقاله:

Isolation of high-quality RNA from a wide range of woody plants

محل انتشار:

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خلاصه مقاله:

Isolation of high-quality RNA is one of the most crucial methods in molecular biology. RNA extraction from woody plants has been problematic due to the presence of rigid and woody tissues, large amounts of polysaccharides, polyphenols and other secondary metabolites. Here we present a suitable protocol for RNA isolation from a wide range of woody plants that includes eight gymnosperms and four angiosperms. The method is based on the CTAB protocol which was modified by adding sodium citrate and two helper buffers. Agarose gel electrophoresis showed a good RNA integrity and total RNA profile that includes all expected RNA bands. Also, DNA and protein contaminations were not observed. Spectrophotometric quantification of RNA samples by NanoDrop showed that the average RNA yields ranged from 35.68 to 216.98 µg per gram fresh weight, that is enough to proceed into cDNA synthesis and other RNA-related works. Both the A260/A280 and A260/A230 ratios were in the desired ranges, indicating that RNA was of high purity and without protein, polyphenol, and polysaccharide contamination. The efficiency of isolated RNA for downstream applications was verified by real-time PCR and successful amplification of a long cDNA. Finally, some advantages and possible applications of the method are also mentioned.

کلمات کلیدی:

RNA isolation, Woody plants, Contaminations, CTAB, Sodium citrate, Helper buffers