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Short Communication

Efficient isolation of high-quality RNA from lotus *Nelumbo nucifera* ssp *nucifera* tissues

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ABSTRACT. *Nelumbo nucifera* is widely used as food, as an ornamental, in medicine, and as packing material; it is also reported to have anti-HIV effects and antioxidant capacity. We sought an improved method for extracting high-quality total RNA from different tissues of *N. nucifera*. Four methods for RNA extraction were assessed for their ability to recover high-quality RNA applicable for evaluation of polyphenol oxidase (PPO) gene expression profiles. The recovery and quality of the RNA obtained from five different tissues by the best CTAB-LiCl method were evaluated through UV light absorbance. Both A_{260}/A_{280} and A_{260}/A_{230} absorbance ratios were more than 2.0; the yield ranged from 59.87 to 163.75 µg/g fresh weight. The brightness of the 28S band was approximately twice that of 18S; the latter was also considered as high-quality RNA. The PPO gene fragment (606 bp) was successfully amplified by RT-PCR, demonstrating the integrity of the isolated RNA. The relative expression levels of the PPO gene based on RT-PCR in five tissues of lotus were: rhizome buds (2.66), young leaves (2.42), fresh cut rhizome (2.02), petals (1.80), and petiole (1.65),

using housekeeping gene β-actin as an internal control. We concluded that the total RNA isolated by this protocol is of sufficient quality for molecular applications.

Key words: CTAB-LiCl; Gene expression; *Nelumbo nucifera*; RT-PCR; RNA isolation

