

Comparisons of different RNA extraction methods on woody tissues of the tropical tree, *Aquilaria malaccensis*

ABSTRACT

Aquilaria malaccensis (karas) produces oleoresin in its wood (known as agarwood) when responding to wounding and microbial infection. Wood tissues are known to contain high levels of polysaccharides, polyphenolics and secondary metabolites, which make RNA extraction challenging. In this work, six different methods for extracting RNA from wood tissues of *A. malaccensis* were compared. RNA yield, purity, and integrity number, were used as parameters to evaluate the efficiency of each method. Conventional methods yielded RNA with good purity but the RNA integrity was poor. The commercial RNeasy Plant Mini kit protocol was modified by means of scaling-up the reaction and combining all aliquots in the same RNeasy spin column, and yielded the highest yield while maintaining the integrity of the RNA. We found that this kit with some modifications was most suitable for extracting RNA from healthy wood and agarwood. This study is essential for future molecular studies on agarwood.

Keyword: Agarwood; *Aquilaria*; Gaharu; Karas; RNA