DNA extraction from dry wood of *Neobalanocarpus heimii* (Dipterocarpaceae) for forensic DNA profiling and timber tracking

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**Abstract** Wood can be a good source of DNA for various applications in forensic forestry and timber trade if high-quality DNA can be retrieved from the dry wood. In order to provide a general guideline for DNA authenticity testing established for *Neobalanocarpus heimii*, this study was designed to evaluate the potential of extracting DNA from the dry wood. Overall, the efficacy of DNA extraction was higher for the cambium and sapwood than for the heartwood tissues. In terms of DNA extraction protocols, the Qiagen kit and CTAB with PTB protocol showed higher PCR amplification rates. In order to safeguard the intactness of the DNA, the DNA extraction from dry wood is recommended to be carried out within 6 weeks after felling for logs and 6 months after felling for stumps. The results also showed that the amplicon size might not account for the PCR amplification success rate, and chloroplast genome yielded higher amplification success rate compared with nuclear genome. However, only the chloroplast region can be perfectly retrieved from heat-treated lumber.

**Introduction**

*Neobalanocarpus heimii* or locally known as chengal is endemic but widely distributed in Peninsular Malaysia. It is found in diverse localities, on low-lying flat land as well as on hills of up to 900 m (Symington 1943). The species produces a