

## **Cross-amplification of microsatellite markers across agarwood-producing species of the Aquilarieae tribe (Thymelaeaceae)**

### **ABSTRACT**

Tree species in the Aquilarieae tribe of the Thymelaeaceae family produce agarwood, a natural product highly valued for its fragrance, but the species are under threat due to indiscriminate harvesting. For conservation of these species, molecular techniques such as DNA profiling have been used. In this study, we assessed cross-amplification of microsatellite markers, initially developed for three *Aquilaria* species (*A. crassna*, *A. malaccensis*, and *A. sinensis*), on ten other agarwood-producing species, including members of *Aquilaria* (*A. beccariana*, *A. hirta*, *A. microcarpa*, *A. rostrata*, *A. rugosa*, *A. subintegra*, and *A. yunnanensis*) and *Gyrinops* (*G. caudata*, *G. versteegii*, and *G. walla*), both from the Aquilarieae tribe. Primers for 18 out of the 30 microsatellite markers successfully amplified bands of expected sizes in 1 sample each of at least 10 species. These were further used to genotype 74 individuals representing all the 13 studied species, yielding 13 cross-amplifiable markers, of which only 1 being polymorphic across all species. At each locus, the number of alleles ranged from 7 to 23, indicating a rather high variability. Four markers had relatively high species discrimination power. Our results demonstrated that genetic fingerprinting can be an effective tool in helping to manage agarwood genetic resources by potentially supporting the chain-of-custody of agarwood and its products in the market.

**Keyword:** *Aquilaria*; Conservation; Cross-transferability; Genetic variability; *Gyrinops*