

Environmental Research, Technology Demonstration and Conference Project

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| ECF Project: | ECF 2018-80 |
| Project Title: | Molecular authentication of endangered timber samples – Protocol development and evaluation on the scope of application |
| Principal Investigator: | Professor Shaw Pang Chui, Professor, School of Life Sciences, The Chinese University of Hong Kong |
| Total Approved Grant: | \$1,290,562 |
| Duration: | 1/9/2019 to 31/8/2021 |
| Project Status/Remarks: | Completed |
| Project Scope: | The project aims to develop reliable molecular methods for identification of timber from ten endangered species, including timbers with high commercial values and commonly found in contraband trade and their related species. DNA extraction protocol will be optimised to obtain amplifiable DNA from the timber for DNA sequencing. Different DNA barcoding loci for their applicability in identifying the endangered species and ease in PCR amplification will be compared. The extractability of DNA from different wood parts, including cambium / sapwood, outer and inner heartwood, as well as on selected wood products, such as small furniture, beads and chopsticks will also be evaluated. The project results will be important for conservation measures and the implementation of CITES control in Hong Kong. |
| Summary of the Findings/Outcomes: | Conventional timber identification by anatomical or chemical analysis requires highly experienced personnel supported with comprehensive reference databases and sophisticated instruments. With the growing demand for hard wood timber to make high-end furniture, Hong Kong has become a hotspot for timber trafficking. Many timber species are now included in CITES Appendices to expand the protection. It is, however, not easy for frontline officers to identify timber or wood products made of the listed species. In this project, the project team developed a reliable protocol for identification of endangered timber wood samples with high commercial values and commonly found in contraband trade including Aquilaria, Dalbergia, and Pterocarpus using molecular techniques. The team compared and modified different wood DNA extraction protocols and developed sequencing primers based on different DNA barcoding loci for identifying endangered timber wood and commercial wood product for Aquilaria, Dalbergia, and Pterocarpus. The result obtained from the protocol could provide a genus-level/species-level identification for the three targeted genus and facilitates effective law enforcement for implementation of CITES control and conservation measures in Hong Kong. |