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Preface

Advancing Wood Identification – Anatomical and Molecular Techniques

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The adoption of wood anatomy for identification has been well-established for more than 100 years to separate genera or species groups but today's demand for forensic wood identification requires discrimination of wood at the species level and determination of the origin of timber, especially for enforcement of legal logging. Recent advances in artificial intelligence, biotechnology, and chemical analysis, including computer vision, DNA typing, and chemotyping with spectroscopic and spectrometric methods for wood show the capacity to improve upon wood anatomy-based identifications. The application of the new techniques to identify species and track the geographic origin of internationally traded timber has attracted increasing interest as a potential part of global systems to support sustainable forestry, to promote legal timber harvest, and to combat illegal logging. This special edition includes major studies investigating the identification of charcoal and particle board, a review of DNA barcoding, and several investigations using computer-assisted, chemometric, and machine learning techniques. All these reports support the broader theme of tracing the origins of timber and wood products in international trade.

To review the progress and new applications of technology in this field, an IAWA-IUFRO international symposium “Challenges and opportunities for updating wood identification” was organized in May 2019 in Beijing, China. To leverage the success of the symposium and disseminate recent research advances in wood identification, the IAWA Journal is publishing this new special edition containing 14 original papers and one review article emphasizing recent developments in wood anatomy and multidisciplinary approaches, as an update to the weighty special edition [2011, 32(2)] “Wood science for promoting legal timber harvest” published in the Journal nine years before.

In addition to new forensic techniques, the establishment of a global network of wood collections/databases and scientists to share relevant data, information, and tools for wood identification is rapidly becoming of increasing importance (e.g. Global Timber Tracking Network). A new IUFRO Research Group-5.16.00 Wood Identification was established in September 2020. IAWA will take this opportunity to strengthen its collaboration with IUFRO and other relevant international/regional organizations (e.g. CITES, ITTO, and IAWS) to play a vital leading role in the research, development, and innovation of global wood identification.

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