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Austrian Institute of Technology GmbH
Health and Environment Department

University of Natural Resources and Life Sciences
Department of Chemistry (VIRIS Lab)
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PROGRAM AND ABSTRACT VOLUME

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DISCRIMINATING BETWEEN DIFFERENT ORIGIN OF AYOUS (TRIPOCHITON SCLEROXYLON) FROM WEST- AND CENTRAL AFRICAN COUNTRIES

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Controlling the declared provenance of timber is an important topic in view of illegal logging. Globally 20-40% of logging is estimated to be illegal. A large international project regarding the investigation of origin of tropical timber from Western and Central Africa has just been completed. The aim of this project was to establish DNA- and isotope methods to differentiate between the origins and to feed the produced data into a database to serve as a base for the identification of true origin. This shall serve as a reference for questions of provenance control in the future and combat illegal logging of tropical timber. Here we report the investigations of stable isotope patterns of Ayous (Triplotichon scleroxylon). The measured samples came from five countries: Ivory Coast, Ghana, Cameroon, Congo and Democratic Republic of Congo (DRC). The first two countries mentioned are in Western Africa while the others are in Central Africa. Triplochiton scleroxylon is one of the major timber logged in this region and intense harvesting resulted in over-exploitation. The samples were measured for their isotopic ratio of the elements hydrogen, oxygen, carbon, nitrogen and sulphur by IRMS (Isotope Ratio Mass Spectrometry). Sr isotopes were measured by TIMS (Thermal Ionisation Mass Spectrometry). The results show a strong influence of geology and climate on the isotope signatures. Samples from DRC can be identified due to the climatic situation of the Congo Basin and the western African countries possess a pattern influenced by the Precambrian bedrock.

The results furthermore document a significant influence of the type of investigated sample material (drill core taken with a drill, wood chips, tree bark, the latter two types harvested with a bush knife).