

ABSTRACTS

Oral presentation

Identifying coffee: development of a low-cost and robust barcoding assay for wild African *Coffea* species

Bawin Y.^{1,2,3*}, Tas A.S.^{1,3}, Mertens A.¹, Stoffelen P.¹, Verstraete B.¹, de Backer S.¹, Vandeloek F.^{1,3} & Janssens S.B.^{1,3}

¹Meise Botanic Garden, Meise, Belgium. ²Centre for Environmental Sciences, Hasselt University, Hasselt, Belgium.

³Department of Biology, KU Leuven, Leuven, Belgium.

*Presenting author: Bawin Y. E-mail: yves.bawin@meisebotanicgarden.be

With an estimated consumption of more than two billion cups a day, coffee is one of the most popular beverages in the world. Nearly all coffee is produced from the seeds of two species: *Coffea arabica* (Arabica coffee) and *Coffea canephora* (Robusta coffee). Both Arabica and Robusta coffee production is threatened by climate fluctuations and disease outbreaks, reducing yields and ravaging coffee plantations. To overcome these challenges, the potential of other wild *Coffea* species for the improvement of existing coffee varieties or for the development of new varieties has been studied. The *Coffea* genus consists of circa 130 described species that are mainly found in sub-Saharan Africa and Madagascar. *Coffea* species on the African continent are more closely related to Arabica and Robusta coffee. Nevertheless, the identification of African *Coffea* species at species level based on morphological traits can be challenging as several species seem to have overlapping trait characteristics. In this study, we developed a molecular barcoding assay consisting of eight nuclear markers between ca 200 and 800 base pairs long that can be sequenced using Sanger sequencing. Marker regions were selected based on the output of publicly available genotyping-by-sequencing data, ensuring that each *Coffea* species included in this dataset had a unique allele for at least two out of eight markers. The resulting barcoding assay is a cost-efficient and accessible tool for the molecular identification of wild African *Coffea* species, facilitating their conservation and their application for the improvement of coffee cultivation.