

Abstract

“The International Conservation Collection of Coffee Varieties” at Wilhelma, Stuttgart, Germany—A First Step towards Preserving the Diversity of Coffee Cultivars[†]

Björn Schäfer

Zoological and Botanical Garden Wilhelma, D-70376 Stuttgart, Germany; bjoern.schaefer@wilhelma.de

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Abstract: The coffee world is changing. Farmers and industry are facing major challenges, largely driven by climate change, changing consumer habits, sustainability and digitalization. One major way to solve these challenges is the coffee cultivars themselves. The coffee farmer might not be able to stop the effects of our changing climate or the habits of consumers, but by growing the right plant at the right place, they might be able to withstand at least harsh weather conditions like heavy rain or long-lasting dry periods. Moreover, the production of single-estate high-quality coffee of pure cultivars guarantees a higher income for the farmer and increased enjoyment for the consumer. For this reason, in 2016, the Zoological-Botanical Garden Wilhelma started to build up a living collection of coffee cultivars. The so called “International conservation collection of Coffee varieties” contains 115 accessions of *Coffea arabica* L., *Coffea benghalensis* B. Heyne ex Schult., *Coffea canephora* Pierre ex A. Froehner and *Coffea liberica* Hiern. The aim of the collection is to preserve as many different coffee cultivars for following generations as possible. The scientific collection is based on the trust and support of coffee farmers from all over the world. Currently, there are project partners in Brazil, China, Columbia, El Salvador, India, Malaysia, Mexico and Thailand. All of them are able to exchange knowledge about their different cultivars and have a backup of living specimens if their own plants are lost due to plant pests or natural disaster. They might even try new cultivars from foreign origins that might be better suited for changing local climate conditions. From every accession, four plants are grown, from which one is cultivated as a big, mostly natural-looking shrub used for exhibitions and cherry harvest. The three remaining plants are kept at a smaller size of up to 120 m to guarantee the preservation of the genetic resource. In addition, the “International conservation collection of Coffee varieties” might be the ultimate resource for all studies dealing with sensorial and aroma profiles of different coffee cultivars because all plants are grown under similar conditions, for instance, similar soil conditions, temperature and water quality. Another advantage is the permanent availability of 115 genetically different coffee varieties for genetic studies. This includes the possibility of generating a family tree of coffee varieties, and in reverse, this offers the opportunity to identify every cultivar by its genetic fingerprint. To be able to realize further projects, it is necessary to obtain an exemption from the Nagoya Protocol to access genetic resources and for the fair and equitable sharing of benefits arising from their utilization for all coffee cultivars. We are working on this, supported by the Federal Office for Agriculture and Food. Finally, to be able to conserve the diversity of existing coffee varieties, more effort will be necessary in traditionally coffee-growing countries on the African continent and the Arabian peninsula.



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