

Ecophysiological Variability of Forest Arabica Coffee Populations in Hydraulic Characteristics Along a Climatic Gradient in Ethiopia: Morphological and Physiological Variability

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SUMMARY

The study was conducted in the natural forest ecology of Ethiopia with the objectives to characterize and compare the variability in morphological and physiological characters of Arabica coffee populations. A randomised complete plot design with three replicates was used at each site and the data were analysed using the SAS statistical software. The results depict site variations in plant composition and density, among others. Forest coffee trees were irregularly and closely spaced under dense shadings. Coffees of different sites had distinct vegetative, leaf and seed growth characteristics. Accordingly, compact coffees with short plant height, narrow canopy spread, erect branching, short internode, small leaves and small bean sizes dominated in Yayu and Bonga forests. Conversely, open and intermediate coffee types with wide canopy, large leaves, long internode and spreading branch orientation were more frequent at Sheko and Bale-DoloMena forests. Plant density and shadings remarkably influenced these traits. In other words, low light condition could be the most environmental factor, which influenced the architecture and reproductive growth response of forest coffee trees. Further research on the interaction of diverse coffees and environmental factors should, however, deserve close attentions with the views to target research and development options on the use and conservation of Arabica gene pools in the country.