

DERIVED FROM INDONESIAN GERmplasm COLLECTION

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Introduction

The expanding recognition and consumption of specialty coffee in the last few decades have led to the emergence of sustaining and potentially augmenting the economic feasibility of this coffee bean variety production. This has prompted breeding initiatives to prioritize the enhancement of beverage quality. This study proposes a selection approach for a large number of coffee accessions in germplasm collection which may help assess numerous genotypes in breeding programs focused on beverage quality and sensory profile

Materials/Methods

Over three years, 198 Arabica coffee accessions from the Indonesian Coffee and Cocoa Research Institute germplasm collection in Jember, Indonesia, were sensory characterized after wet postharvest processing. The sensory analysis of the beverage was conducted by three expert tasters following the protocol of the Specialty Coffee Association of America (SCAA) [1]. The sensory analysis encompassed aroma, flavor, aftertaste, acidity, body, balance, overall, uniformity, sweetness, and cleanliness. Specialty coffees scored 80 or more on the sum of 10 sensory attributes. Specialty coffees scored from 85 to 89.99 is considered excellent. The sensory scores of the accessions were compared with check varieties (S795). Subsequently, the accessions that achieved superior scores than check varieties were subjected to cluster analysis using SAS software version 9.4.

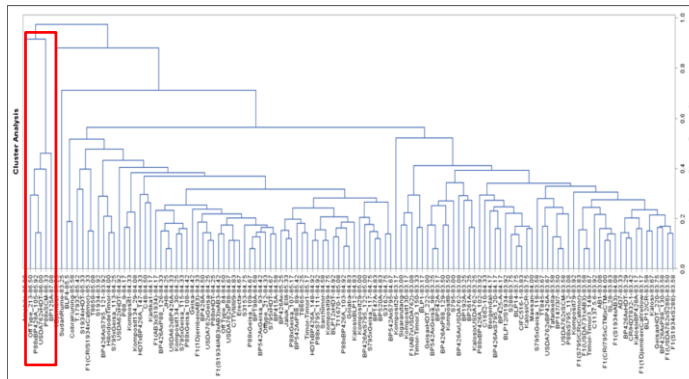


Figure 1. Cluster analysis of accessions that have better taste compared to check variety (S795)

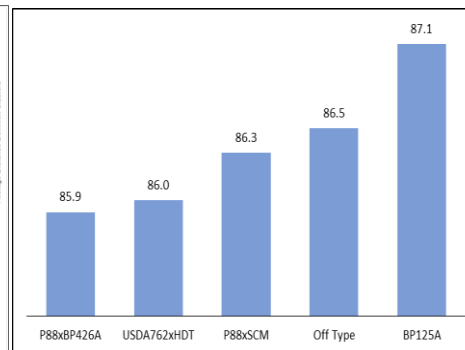


Figure 2. Overall mean for the sensory score of the beverage of the 5 accessions selected from 198 Arabica coffee accessions

Results/Discussion

Through the proposed method, the check variety (S795) obtained a total score of 83.00, and there were 123 accessions exhibiting a higher total score than the control. The cluster analysis result revealed the best coffee accession cluster with a mean total score of 86.37. Within this cluster, five accessions had excellent beverage quality according to the SCAA classification and had strong values across all sensory attributes. The accessions demonstrated favorable characteristics, including a spicy, caramel, floral taste and a bright acidity type. All the accessions in this group were selected as prospective accessions for further testing.

Conclusion/Perspectives

We concluded that the selection strategy produced promising genotypes for excellent specialty arabica coffee. The effectiveness of this strategy is due to the use of well-known check varieties as preliminary selection and exceptional care in experimental precision throughout the entire procedure. These accessions were planted in the field to assess their adaptability and increase the production of such coffees. Furthermore, the five selected accessions are crossed with elite cultivars to generate new segregation.

References

[1] SCAA. 2015. SCAA Protocols - Cupping Specialty Coffee. Specialty Coffee Association of America.

Comment of cup taste:
P88xBP426A : Caramelly, herbal, Lemony, Bright Acidity
USDA762xHDT: Floral, Honeyed, Bright Acidity
P88xSCM : Spicy, Lemony
Offtype : Spicy, Salty
BP125A: Spicy, Bright Acidity