



Introduction

Coffee is one of the most popular beverages. In Ethiopia, coffee grows in southwest, southeast, west and southern part of the country and the country has specially known flavor in the world market

Information on genotype by environment interaction (GEI) is essential for the development of coffee cultivars with high coffee quality. However, this information is lacking for Wollega-originated coffee types. The present study was, therefore, conducted to assess the magnitude of GEI and the stability of Wollega coffee genotypes for quality attributes.

Materials/Methods

- The experiment was conducted at three locations in western Ethiopia namely, Haru, Nedjo, and Mugi
- 16 Wollega coffee genotypes were used for the study
- The coffee quality analysis was conducted in the coffee processing and quality laboratory at JARC (Behailu et al., 2008)
- RCBD with three replications were used during the 2016 and 2017 crop seasons.
- Data on 12 important quality traits were recorded
- The combined analysis of variance and stability analysis were performed using SAS (SAS, 2011)

Conclusion/Perspectives

The results showed that the interaction between genotype, location and year significantly influenced most of coffee quality attributes. Besides, relatively stable genotypes were identified for important coffee quality attributes. Therefore, these genotypes can be recommended for crossing program to improve the stability of these traits. However, as the coffee quality is affected by the bean biochemical content, the effects of GEI on the coffee bean biochemical content should also be considered in future studies.

References:

- Behailu Weldesenbet, Abrar Sualeh, Negussie Mekonnen and Solomon Endris. 2008. Coffee processing and quality research in Ethiopia
 SAS. 2011. Statistical analysis system (version 9.3), SAS Institute, Cary, NC,USA

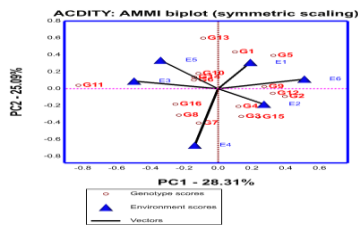


Figure 1: AMMI II biplot of 16 coffee genotypes at six environments for acidity

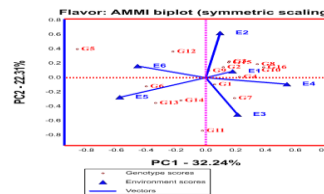


Figure 2: AMMI II biplot of 16 coffee genotypes at six environments for flavor.

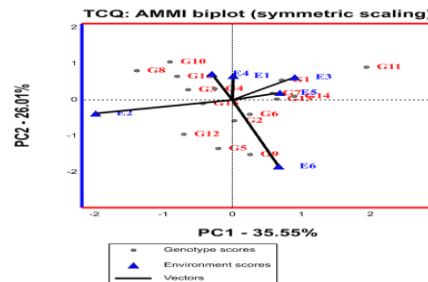


Figure 3 AMMI II biplot of 16 coffee genotypes at six environments for TCQ

Results/Discussion

The combined analysis of variance (ANOVA)

Interaction between location, year, and genotype was significant ($P < 0.05$) for aromatic intensity, acidity, flavor, overall coffee quality, and total coffee quality.

The stability analysis identified the following genotypes as stable

- G6 (W54/99) and G10 (W99/99) for acidity;
- G2 (W13/99) and G4 (W108/99) for flavor;
- G2 (W13/99), G4 (W108/99), and G12 (Haru 1) for overall quality and
- G4 (W108/99), G6 (W54/99) and G2 (W13/99) for total quality