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Supplementary material.

PCA analysis



Scatterplot

Plot of Component Weights



Principal component analysis (PCA) is a method to identify patterns of similarities and differences and express data after reducing multivariate data complexity.^(1,2) In the present study, PCA analysis was implemented in order to evaluate simultaneous changes in chemical composition, nutritional profile and antioxidant activity patterns of the seeds of the tested okra genotypes. The first three components of PCA explained 66.88% of total variation, indicating correct application of PCA to nutritional value, chemical composition and antioxidant properties of the tested genotypes. Moreover, the second principal component identified discrete responses between the evaluated parameters, reaching a cumulative contribution ratio of 23.96%, while the first principal component identified a separation with a contribution ratio of 15.42%. All PCA components were statistically significant.

Total sugars, raffinose, total organic acids, beta-carotene, PUFA, chlorophyll a and Ca contents were positively related to the first principal component, whereas proteins, MUFA, K and Na contents were negatively related to the first principal component. For the second principal component, fat, energy, Zn, Fe, gamma- and total tocopherols, and sucrose contents, and reducing power were positively related, whereas SFA and carbohydrates contents were negatively related. Finally, ash content and beta carotene inhibition and TBARS were positively related to the third principal component, whereas alpha-tocopherol, quinic acid, chlorophyll b, total chlorophylls and Mg content and DPPH were negatively related to the third principal component.

PCA analysis revealed four groups of genotypes. The first group includes "Veloudo", which is distinctively separated from the second group, which includes "Pylaea" and "Boyati". The third and fourth group are located at the far left side of the scatterplot,

with genotypes "Clemson Spineless", "Long Dwarf Green" and "Lasithi" being separated from "Choppee" and "Silver Queen".

References

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- 2. Cheng H, Chen J, Chen S, Wu D, Liu D, Ye X. Characterization of aromaactive volatiles in three Chinese bayberry (Myrica rubra) cultivars using GC-MS-olfactometry and an electronic nose combined with principal component analysis. Food Res Int. 2015;72:8–15.