

Figure S1. Comparison of metabolite contents distribution before and after normalization.

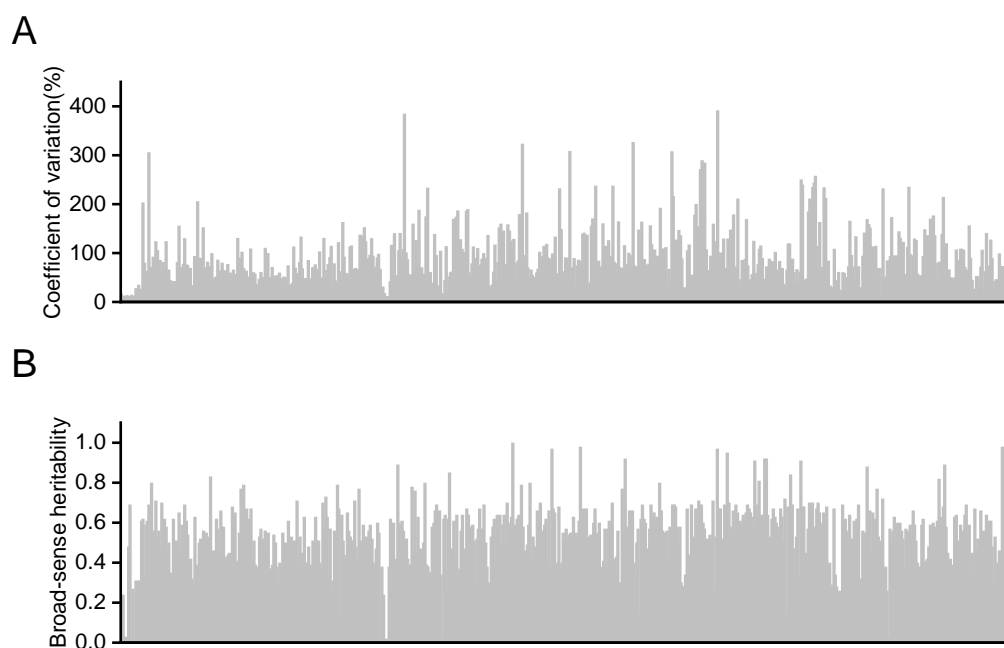


Figure S2. **(A)** Distribution of variation coefficients and **(B)** the broad-sense heritability of metabolites.

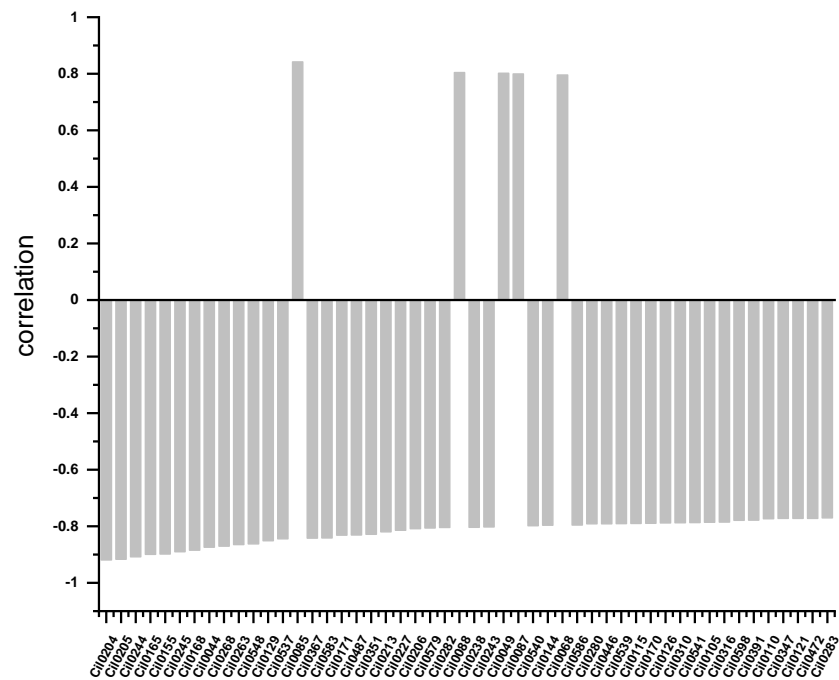


Figure S3. Correlation pattern of the top 50 compounds correlated with the *C.colocynthis* - *C.amarus* - *C. mucosospermus* - *C. lanatus* edible seed watermelon - *C. lanatus* Landrace - *C. lanatus* Improved. The top 50 largest absolute value of correlation coefficient in known metabolites are shown in this figure.

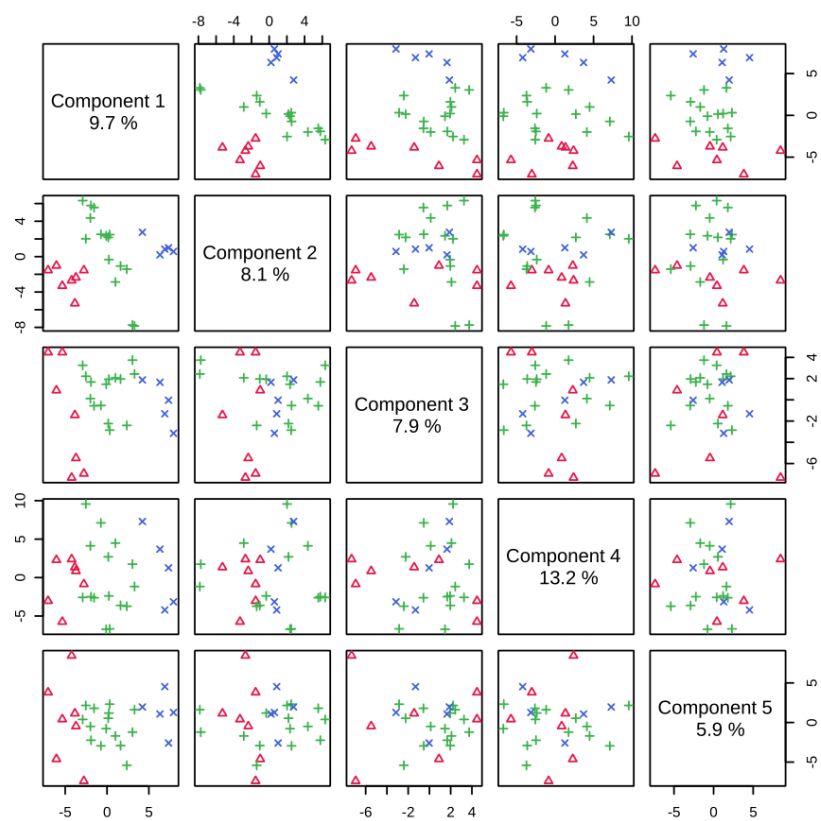


Figure S4. Pairwise scores plots between the top 5 components by PLS-DA analysis.

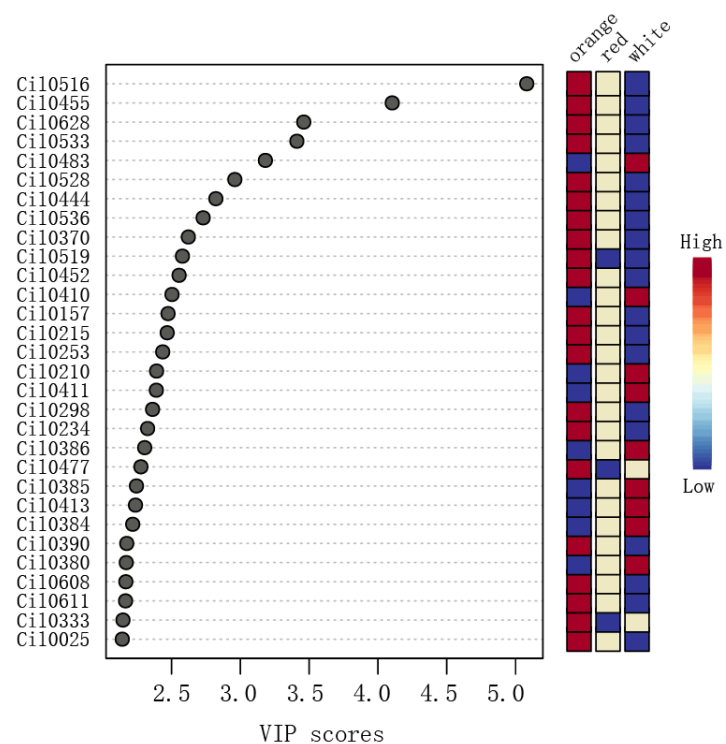


Figure S5. Important metabolic traits identified by PLS-DA analysis. The colored boxes on the right indicate the corresponding metabolite relative contents in each group.

