



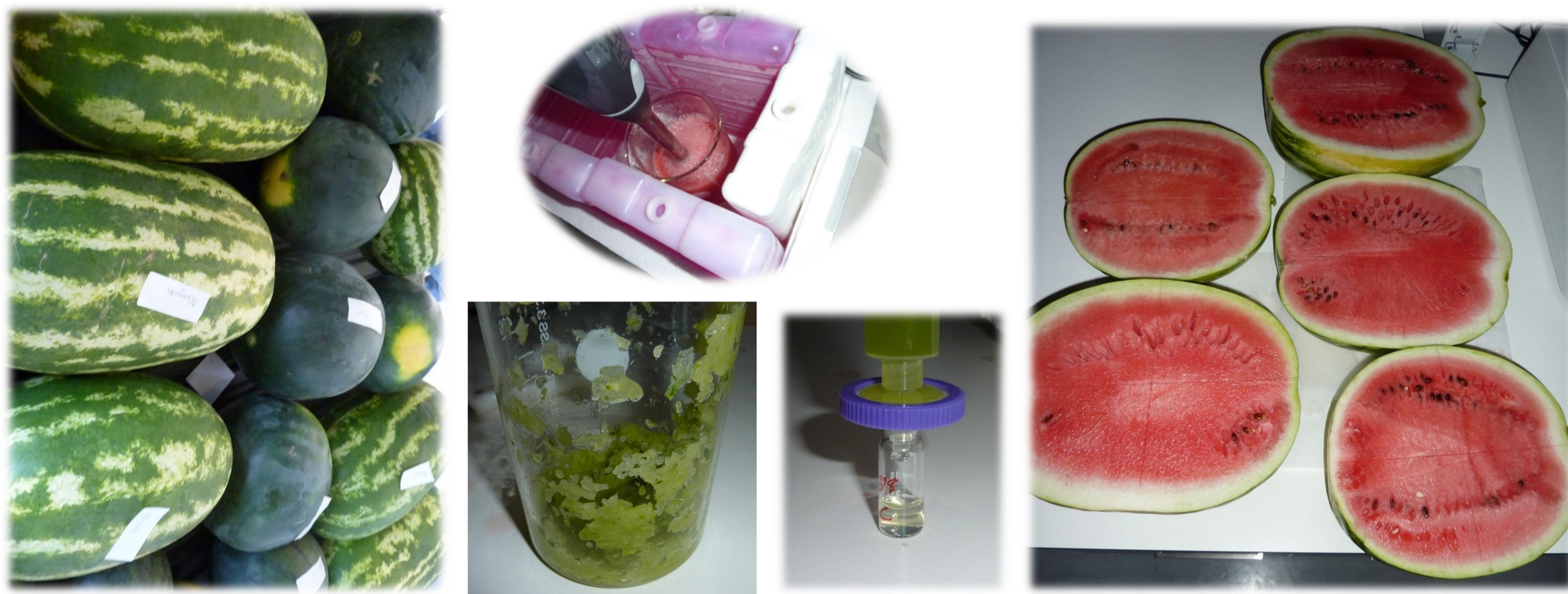
# Identification of citrulline in different parts of watermelon by liquid chromatography with mass spectrometry (LC-MS/MS)

**Luísa Paulo, Mafalda Resende, Cristina Miguel Pintado, Paulo Antunes**

CATAA – Associação Centro de Apoio Tecnológico Agro Alimentar, Zona Industrial de Castelo Branco, Rua A, Castelo Branco, Portugal

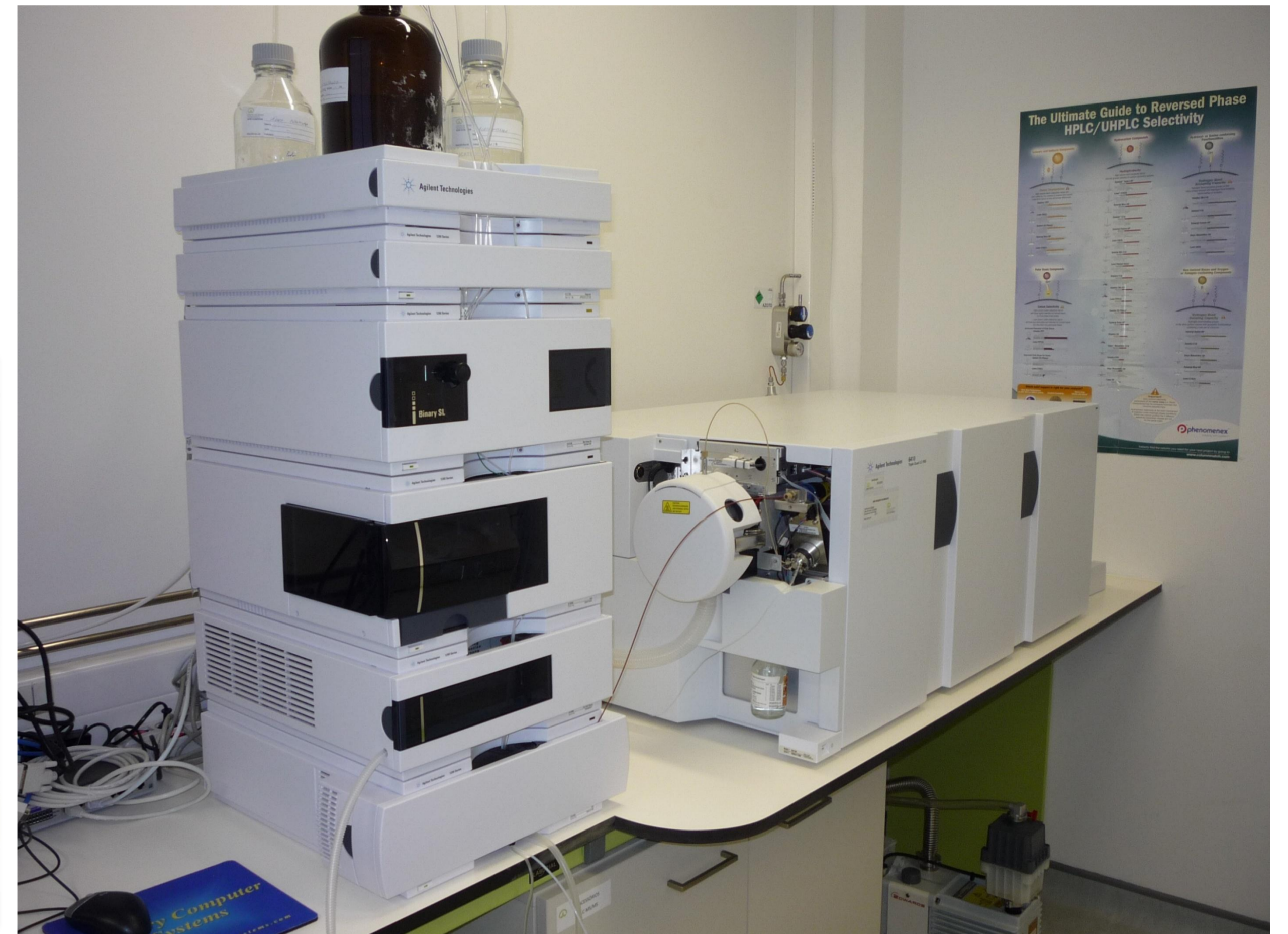
## Introduction

Watermelon is one of the commonly consumed fruits in many of countries. This highly consumed fruit, once being only a summer food is currently becoming an everyday fruit. The aim of this work was to identify bioactive compounds in rind and edible part of watermelon from different cultivars (crimson sweet, augusta, baba, motril, toro, veronica, dulce, perla negra, azabache, style and alongada). Citrulline was one of the interest compounds because acts in the nitric oxide system in humans and has potential antioxidant and vaso dilatation roles.



## Methods

Quality parameters were determined (pH, acidity, total soluble solids, lycopene, total phenolic and antioxidant activity). Liquid chromatography coupled with electrospray ionization tandem mass spectrometry was used for the tentatively identification of compounds.



## Results

- ✓ Analyzing chromatograms of edible part and rind, we observed distinct profiles and in both rind and edible part.
- ✓ Based on obtained results citrulline was more abundant in edible part comparatively with rind in the most cultivars (Figure 1).
- ✓ Significant differences were found in citrulline values when comparing cultivars.
- ✓ Principal component analysis was used to evaluate the correlation of citrulline with quality parameters (pH, acidity, total soluble solids, lycopene, total phenolic and antioxidant activity-Figure 2). Citrulline demonstrates opposite variation within pH, total soluble solids and lycopene (decreases during maturation), in the edible part, whereas in the rind the citrulline levels were independent from these parameters.

Figure 1

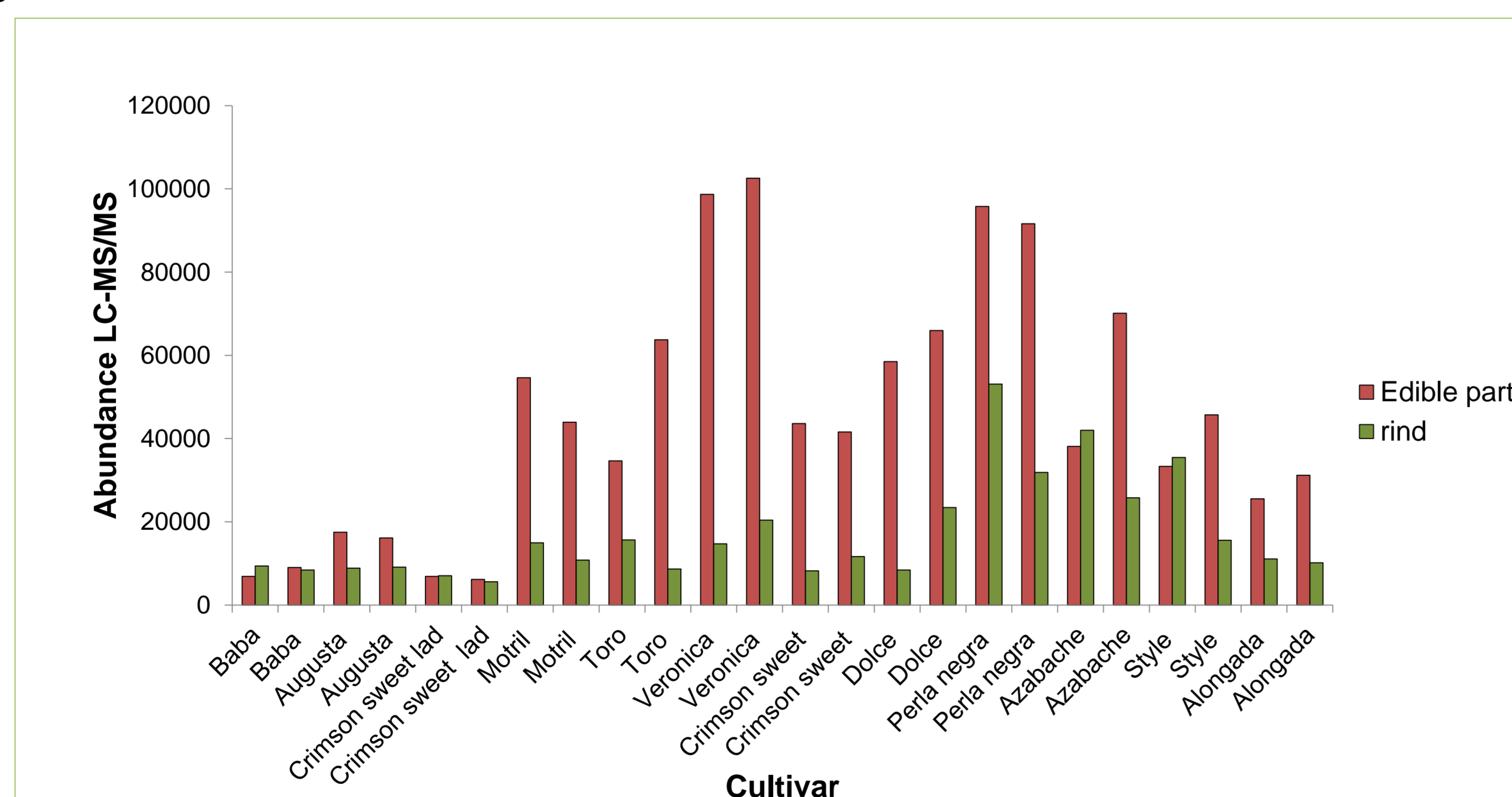
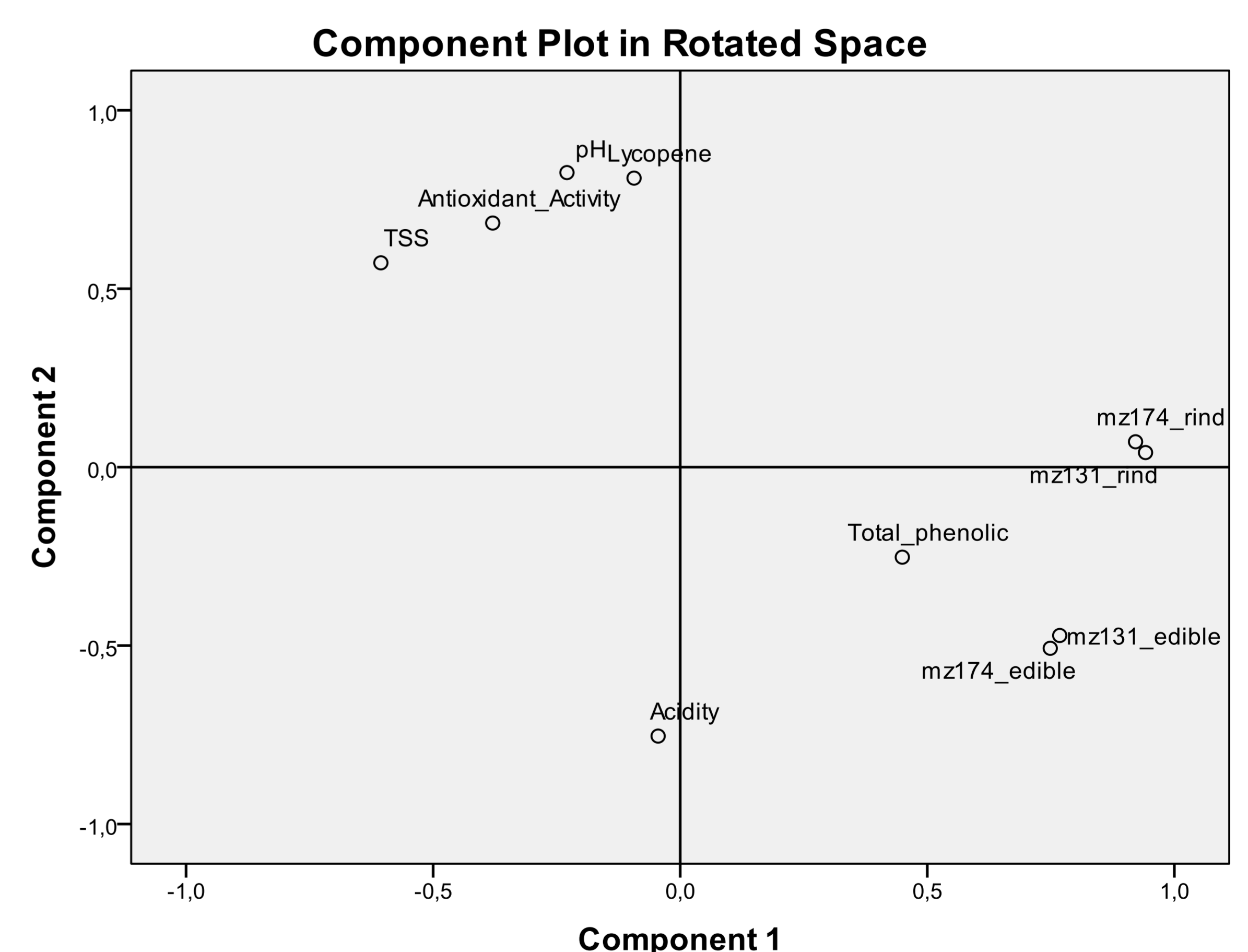


Figure 2



## Conclusions

- ✓ These results indicate that watermelon is a natural and rich source of the non-essential amino acid citrulline.
- ✓ Furthermore, watermelon rind shown that is a rich source of citrulline and may yield a useful product from an agricultural waste.

## Acknowledgments

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