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VARIABILITY LEVELS OF SELECTED AMINO ACIDS AMONG MANDARINS PRODUCED IN URUGUAY

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The characterization of the nutraceutical properties of mandarins, besides their high Vitamin C content and antioxidant flavonoids, is of great interest to promote the consumption of *Citrus*. Additionally, it provides a qualitative differential trait since the demands for functional food is a growing trend in the world. The presence of amino acids (AAs) in Uruguayan mandarins could be identified through ^{1}H NMR data. To learn more about its occurrence and variability between species, a "targeted metabolomics" study in three mandarins' varieties ('Ellendale', 'Willowleaf' and 'Page') was performed. The AAs studied through ion exchange LC (ESI-)-MS/MS were: phenylalanine, glutamic acid, glutamine, threonine, tyrosine, proline, asparagine, histidine and methionine. The extraction methodology was adapted from Choi. The differences between two consecutive seasons (2015 and 2016) were evaluated, and the influence of fruit maturity in the AAs content of 'Page' variety collected in two periods within the same year (May and June/2015) as well. The analytical methodology was validated (linearity between 10-1000 µg/L for each AA, LOQs between 10-500 µg/L). The concentration levels of the AAs for the mandarin varieties were analyzed through Principal Component Analysis (PCA). A clear differentiation could be observed between the varieties harvested in 2016 and 2015 according to their AAs profiles. The PCA analysis comparing the AAs levels at different harvesting periods of cv. 'Page' in 2016 indicated a clear similarity between the observed profiles during 2015 and 2016 exclusively with samples harvested in July, winter time. The different profiles in the AAs content of mandarins are due to the genetic diversity among varieties, but the climatic conditions could influence them. This is quite interesting since these profiles could be used to add value to each product, according to the AAs content.

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