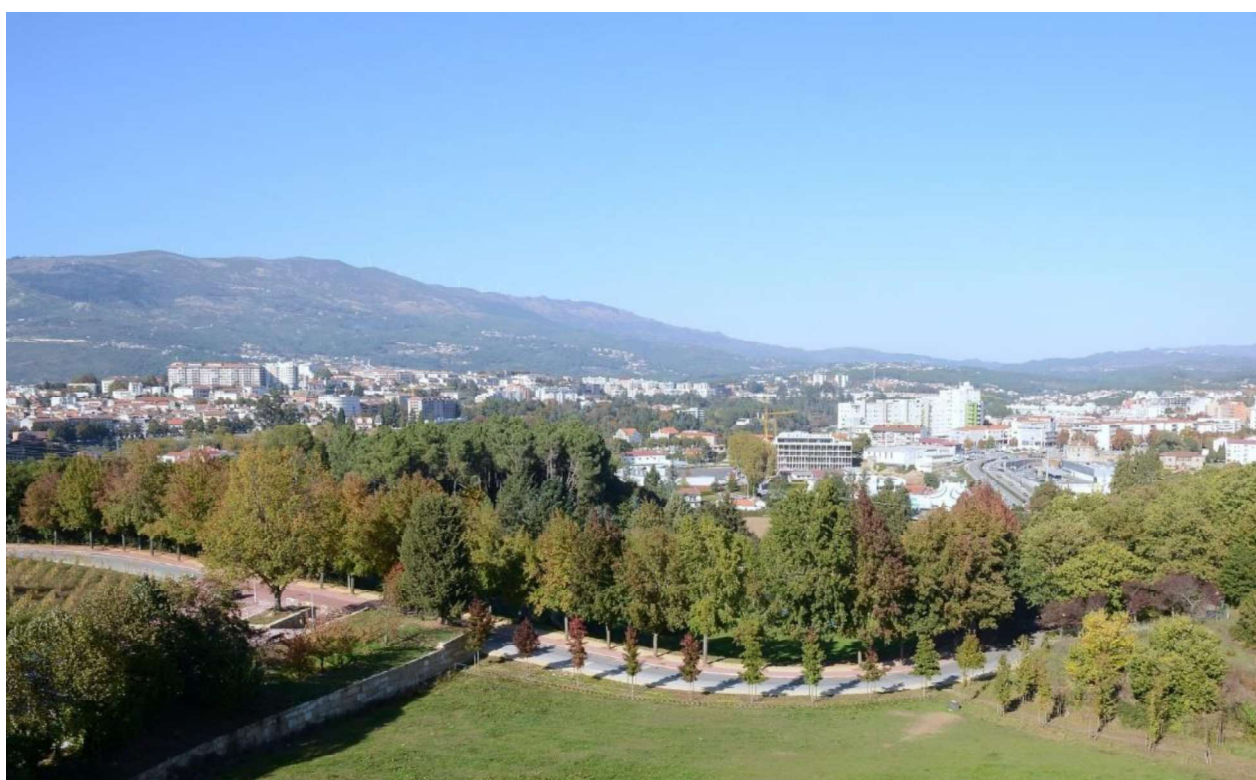




PYChem
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17-19 May 2023 Vila Real



UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO

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COMMITTEES

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Mariana Fernandes
Vanessa Gomes
Vânia Graça

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Ana Rita Moura
Ana Gomes
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Leonilde Marchão
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Cristina Campos

- **P58** - Vitor A. S. Almodovar
Synthesis and structural and photophysical characterizations of Diketopyrrolopyrroles for technical and biological applications
- **P59** - Carla Cunha
Efficient design of di-tert-butyl-diphenyldibenzofulvene derivatives with enhanced aggregation-induced emission

Physical chemistry

- **P60** – Miguel Teixeira
Sorption study of furanic compounds in transformers' insulating materials systems

Surface chemistry and interfaces

- **P61** - Nélia C. T. Tavares
Essential oils and their emulsions: gathering antibacterial activity and molecular dynamics in unveiling new antiseptic cosmetics

PYCAAWARD

- Pedro Brandão
“Putting all the pieces together”: isatin-based multicomponent reactions as a sustainable approach in drug discovery

EXPLOITING THE NUTRITIONAL AND CHEMICAL DIVERSITY OF PORTUGUESE TOMATO (*SOLANUM LYCOPERSICUM* L.) GERMPLASM

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Tomato (*Solanum lycopersicum* L.) is the second most important vegetable crop worldwide and one of the most preferred garden crops. It is a versatile key component of the Mediterranean diet commonly associated with a reduced risk of chronic degenerative diseases due to its composition in bioactive molecules [1,2]. Throughout its evolutionary and domestication process, this species has undergone diverse genetic and inbreeding phenomena that have led to the emergence of a vast number of varieties with different morphological and sensory attributes [3]. Many of these varieties have been grown by local farmers and represent a reservoir of genetic diversity with enormous potential for breeding and sustainable conservation. However, since information on tomato germplasm composition is limited, this study aimed to characterize the nutritional and chemical diversity of Portuguese table tomato genotypes. Tomato accessions (with the local names of “tomate comum”, “tomate coração-de-boi”, “tomate patinha”, “tomate cor-de-rosa”, and “tomate pera”) from the Portuguese Genebank collection were regenerated to obtain ripe fruits for replenish seeds and for analysis. After sample preparation, these were analyzed for their individual profiles of free sugars, organic acids, fatty acids, and tocopherols through different chromatographic techniques and carotenoids were quantified using a spectrophotometric method [1,4]. Furthermore, the proximate composition (moisture, protein, fat, and ash) was analyzed using AOAC procedures and carbohydrates were estimated by difference [1,4]. The characterized tomato table varieties showed differences in the contents of some investigated individual and crude constituents. The highest levels of carbohydrates, ascorbic acid, α - and β -tocopherol, monounsaturated fatty acids (MUFA), and polyunsaturated fatty acids (PUFA) and the lowest levels of crude fat, α - and γ -tocopherol, and saturated fatty acids (SFA) were detected in the so-called “tomate comum” accession. The “tomate pera” had the highest levels of free sugars, crude fat, SFA, and γ -tocopherol and the lowest levels of ascorbic acid and PUFA. On the other hand, the “tomate patinha” had the highest concentrations of protein and oxalic and citric acids, and the lowest glucose content. The “tomate cor-de-rosa” had the lowest concentrations of total carbohydrates, fructose, malic and citric acids, and carotenoids. In turn, the highest contents of malic acid and carotenoids and the lowest protein, oxalic acid, MUFA, and β -tocopherol contents were quantified in the “tomate coração-de-boi” accessions. Overall, these findings will be useful for establishing criteria for a rational selection of the most promising traditional table tomato varieties from a nutritional and chemical point of view. Their inclusion in sustainable food systems as tasty and healthy foods could contribute to the promotion of nutrition programs better adjusted to the consumers' preferences and dietary needs.

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