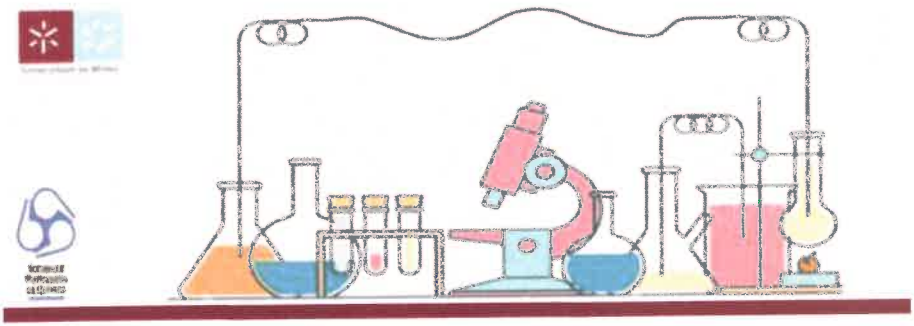

3rd Symposium on Medicinal Chemistry of University of Minho

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School of Science, Chemistry Department

University of Minho, Campus of Gualtar

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Posters

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Profiling Antioxidant Vitamins and other Phytochemicals in Portuguese Tomato Landraces.

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Tomato (*Solanum lycopersicum* L.) is a key element of the Mediterranean diet and a source of nourishment for the world's population [1]. During the evolution and domestication of this plant, genetic modifications and severe inbreeding of limited genotypes occurred [2]. As a result, a wide range of fruits with different morphological and sensorial attributes gave rise to a number of landraces that have been cultivated for centuries. These landraces represent a reservoir of genetic diversity that can be used in fruit breeding programs. However, since information about the chemical variation present among tomato landrace populations is still limited, this study aimed to profile the bioactive compounds of Portuguese landraces. Seeds from five accessions of tomato landraces ("coração de boi", "maçã", "tomate", "redondo" and "vermelho") from the "Santarém" region, conserved ex-situ at the Portuguese Bank of Plant Germplasm, in Braga, were grown in order to regenerate and characterize these plant materials. The ripe fruits were hand harvested and analyzed for lycopene (by a spectrophotometric method), ascorbic acid (by HPLC coupled to a photodiode array detector) and tocopherols (by HPLC coupled to a fluorescence detector) [3]. The antioxidant activity of hydroalcoholic extracts was evaluated using the *in vitro* assays of $DPPH^{\bullet}$ scavenging activity, reducing power and β-carotene bleaching inhibition capacity. Total phenolics and flavonoids were estimated by colorimetric methods [3]. Different levels of vitamins and other phytochemicals were detected in the studied samples, as well as different antioxidant activities. In general, the highest levels of lycopene and tocopherols (important lipophilic antioxidants) were found in the "coração de boi" and "vermelho" landraces. α-Tocopherol was the most abundant isoform in all samples, followed by γ-tocopherol. Ascorbic acid was particularly abundant in the "redondo" and "coração de boi" varieties. The "vermelho" tomato also revealed an interesting level of total phenolics and a high reducing capacity. High levels of total flavonoids and a high $DPPH^{\bullet}$ scavenging activity were attributed to the "maçã" landrace. This study highlights Portuguese tomato landraces as health-promoting superfoods (or functional foods) with high levels of powerful antioxidants involved in protection against free radical-induced diseases.

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