

ANTIOXIDANT CAPACITY OF PORTUGUESE ENDEMIC *RUBUS* FRUITS IN A NEURODEGENERATION CELL MODEL

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A wide array of plant phenolic substances have been reported to have substantial neuroprotective activity, intervening on multiple biological processes such as iron chelation, radical scavenging, activation of survival genes, cell signaling pathways, regulation of mitochondrial function and possibly the ubiquitin/proteasome system. *Rubus* species are a well known source of polyphenols with high antioxidant activity that may provide human health benefits.

The aim of this work is to compare the neuroprotective antioxidant activity of *Rubus idaeus* fruits with endemic species fruits from the Northeast of Portugal.

A hydroethanolic extraction of fruits from *R. idaeus*, *R. brigitinus*, *R. sampaioanus*, *R. vigoi* e *R. genevieiri* was performed. Total phenolic content and the *in vitro* antioxidant properties of *Rubus* sps. fruits extracts were then evaluated by the Oxygen Radical Absorbance Assay. The ratio ORAC/total polyphenols is equivalent for *R. idaeus*, *R. brigitinus*, *R. sampaioanus*, and slightly higher than *R. vigoi* and *R. genevieiri* that has the lower ratio.

Toxicity tests of *Rubus* sps. fruits extracts were performed in a neuroblastoma cell line (SK-N-MC) using CellTiter-Blue[®] kit. A nontoxic range of concentrations was defined using the SK-N-MC cells. The intracellular radical scavenging activity of the plant extracts in an oxidative stress-induced model of neurodegeneration in SK-N-MC cells was evaluated to the nontoxic range.

The pre-treatments with the extracts of *R. idaeus*, *R. brigitinus*, *R. sampaioanus* protects the cells from the oxidative stress injury as detected by an increase in cell viability up to 50% with 62,5 µg GAE.mL⁻¹ and 60-70 % with 125 µgGAE.mL⁻¹ of *R. idaeus*, *R. brigitinus*.

These results for *in vivo* radical scavenging activity of the *Rubus* sps. fruits extracts confirm the potential evaluated by the ratio ORAC/total polyphenols. These uncharacterized fruits revealed to be a promising source of natural antioxidants. Further studies will confirm their possible future use as neuroprotective compounds.

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