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Anti-Proteinase and Antioxidant properties of cold pressed *Prunus Domestica* Kernel Oil

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Recently, there has been an increasing interest for the oils obtained from non-conventional plant seeds, due to their valuable functional compounds with various therapeutic effects. The present study aimed to determine the anti-proteinase and antioxidant effects of *Prunus domestica* seed oil. The cold pressed oil was obtained by pressing plum seeds using a screw expeller. GC-FID and HPLC were employed to determine fatty acid and tocopherol profile, respectively. The anti-proteinase effect of oil samples was evaluated by determination of the percent inhibition of trypsin action. The DPPH radical scavenging assay was used to determine the antioxidant activity of the tested oil at different concentrations. Three tocopherol homologues were detected in the tested oil (δ - (24.28%), α - (32.35) and β - tocopherol (43.38%)). The dominant fatty acids were oleic (57.53%) and linoleic (32.57%) acids. The high amounts of those bioactive compounds are of importance in nutritional and pharmaceutical applications. The concentration dependent (0-50 $\mu\text{g}/\text{mL}$) increases of antioxidant activity of oil was observed. The tested oil showed important antioxidant capacity with an IC_{50} value of 55 $\mu\text{g} / \text{ml}$ in comparison with the standard quercetin ($\text{IC}_{50} = 63 \mu\text{g} / \text{ml}$). At the concentration of 50 $\mu\text{g}/\text{mL}$, the oil was also found to inhibit 92.3% of proteinase activity. These important properties of plum oil may be due to its high content of β -tocopherol and oleic acid. Proteinase inhibitors have a potential therapeutic value as anti-inflammatory agents. Therefore, more *in vivo* and *in vitro* studies are needed in order to potentially exploit plum oil as natural anti-inflammatory and antioxidant agent for medicinal health, functional food, and nutraceuticals applications.

Keywords: plum seeds, cold pressing oil, proteinase inhibitors, antioxidants.

Biography:

Saoussem Harrabia obtained in 2003 her Master's degree in Biochemistry at the Faculty of Science of Tunis (Tunisia). She earned her PhD from the University of Tunis El Manar in 2008. During her doctorate, she gained great experience in analytical techniques like HPLC-MS/MS and GC-MS in the Chemistry Department, University of Ottawa. In 2013, Dr. Harrabi joined the Faculty of Medicine of Tunis, University of Tunis El Manar as assistant Professor in Biochemistry. Her current research program is focused on the natural lipids with antioxidant and anti-inflammatory the potential.