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## **Title: ANTIOXIDANT EXTRACTS FROM NATURAL SOURCES AS POTENTIAL ENZYMATIC BROWNING INHIBITORS IN FRUITS**

**Scientific Track:** Food Conservation

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### **(200- 250 words)**

The increasing demand for fresh and stable fruits forces the Food Industry to develop new and better methods for conserving fruit quality and extend shelf life. Fruit browning inhibition represents a challenge to quality conservation. Browning is often associated with undesirable off-flavors, negative effects on taste and nutritional value and, consequently, shorter shelf life thus consumer rejection. This physiological disorder is mainly caused by the oxidation of fruit's natural phenolic compounds into quinones by polyphenol oxidase (PPO) and peroxidase (POX)<sup>1</sup>. Browning prevention has traditionally been performed through the application of various chemicals, such as ascorbic and citric acids<sup>2</sup>. However, a bigger effort has been made to discover natural preservatives. Herein we report the antioxidant capacity and PPO and POX enzymatic inhibition potential of natural byproducts extracts, namely apple fruit and arbutus leaves and branches. The antioxidant activity was evaluated using ABTS<sup>+</sup> radical scavenging activity. The inhibitory effect on PPO and POX activities was evaluated using a spectrophotometric assay by reaction of the natural extracts with the commercial enzymes, using catechol and guaiacol as substrate. The present study demonstrated that arbutus leaves extract showed the highest antioxidant capacity ( $486.173 \pm 0.022 \mu\text{g}/\text{mg}_{\text{dw}}$  TEAC equivalent). However, arbutus branches and apple byproduct extracts were the most effective at inhibiting PPO and POX activities, respectively. The study has practical implications in producing enhanced value-added natural extracts for fruits conservation in the whole and processed fruits industry sectors.

### **Short Biography (Up to 100 words)**

“Dr. Cindy Dias is currently working as research fellow at the Universidade Católica Portuguesa. Dr. Cindy Dias completed her Master degree in Biological Engineering from the University of Minho. Her publications and conference attendance reflect her research interests in Food chemistry and preservation.

**Research Interest:**

Post-harvest technologies, fruits nutritional, functional and sensorial quality, low impact technologies to extend the shelf life of fresh fruits, quantification and extraction of bioactive compounds from by-products, Food Biotechnology, Food chemistry.

**Keywords:** Food Conservation, Browning disorder, PPO inhibition, Antioxidants, Natural extracts

**References:**

1. Names (first five), et al. (2012) Article Title. Journal Title/ Book Title 80: 81-112.  
Tomás-Barberán, F.; Espín J.C. (2001) Journal of the Science of Food and Agriculture 81, 853-876.
2. Chen, L. et al. (2000) Journal of Agricultural and Food Chemistry 48:4997–5000.

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