

9<sup>th</sup> World Congress on  
**POLYPHENOLS APPLICATIONS**

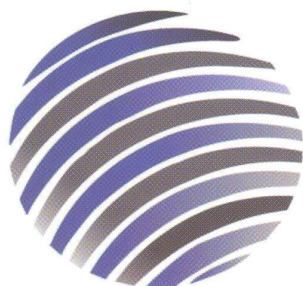
June 3-5, 2015 - St Julian's - Malta

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9<sup>th</sup> ISANH Congress on

# Polyphenols Applications

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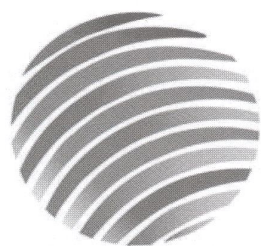
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## EVALUATION OF DIGESTIBILITY AND BIOACCESSIBILITY OF CHLOROGENIC ACIDS CONTENT IN DIFFERENT SAMPLES OF COFFEE SILVERSKIN

Guglielmetti, Alessandro; Belviso, Simona; Ghirardello, Daniela

Barbosa-Pereira, Letricia; Botta, Cristian; Zeppa, Giuseppe

University of Turin, Italy

letricia.barbosapereira@unito.it

Coffee silverskin (CS) is the skin that covers the green coffee beans and represents the major by-product during coffee roasting. This tegument is rich in phenolic compounds like chlorogenic acids that have a high antioxidant activity<sup>1</sup> and several health benefits<sup>2</sup>. To achieve these specific benefits, polyphenols must be released into the gastrointestinal tract in order to become available for intestinal absorption. The aim of this work was then to evaluate chlorogenic acids digestibility and bioaccessibility under gastric and duodenal conditions using an in vitro digestion model. Two coffee varieties, *C. arabica* and *C. canephora* both “natural” and “washed” were roasted at three different temperatures and CS was milled (120 µm). The obtained samples were submitted to salivary, gastric and duodenal digestion<sup>3</sup>. Due to difference in the polyphenols concentration, it was necessary to normalize the results with two different indices, the percentage of digestibility and the percentage of bioaccessibility<sup>3</sup>, evaluating respectively the amount of polyphenols present in the complete digesta (supernatant and pellet) and the supernatant fraction after each step of digestion. Obtained results showed that CS from “natural” arabica represents the best source of bioaccessible polyphenols due to the highest values of duodenal digestibility (37.11%) and duodenal bioaccessibility (46.39%).

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2. Butt, M. S., & Sultan, M. T. (2011). Coffee and its consumption: benefits and risks. *Critical Reviews in Food Science and Nutrition*, 51(4), 363–73.

3. Ortega, N., Reguant, J., Romero, M.-P., Macià, A., & Motilva, M.-J. (2009). Effect of fat content on the digestibility and bioaccessibility of cocoa polyphenol by an in vitro digestion model. *Journal of Agricultural and Food Chemistry*, 57(13), 5743–9.