

4th International Conference and Exhibition on

Food Processing & Technology

August 10-12, 2015 London, UK

Antioxidant properties of *rapeseed* can be modified by cultivation and biological stress

Ryszard Amarowicz¹, Cwalina-Ambroziak^{B2} and Stepień M²

¹Polish Academy of Sciences, Poland

²University of Warmia and Mazury, Poland

Phenolic acids are the main group of phenolic compounds in *rapeseed* and canola seeds. Anti oxidative properties of extracts of phenolic acids from *rapeseed* and Canola are significantly important from the nutritive and technological point of view. Examination of these properties was a subject of many publications and scientific reports. However, the information of the influence of cultivation condition on the antioxidant capacity of *rapeseed* is limited. Materials of the investigation were three cultivars of *rapeseed*: California, Castilla and Nelson F1. The seeds were cultivated using normal (N), intensive (I) and economical (E) technology. In addition, seeds of cultivar Hybryda I was infected by *Alternaria brassice*. From the defatted plant material, phenolic compounds were extracted with 80% (v/v) methanol. Phenolic compounds present in the crude extracts showed antioxidant and radical scavenging properties as revealed following studies using FRAP, ABTS and DPPH methods. The content of phenolic compounds in the extracts was determined using the Folin & Ciocalteu's phenol reagent. The content of total phenolic in the crude extracts ranged from 48 mg/g (Castilla -I) to 61 mg/g (California-N). The weak effect of the cultivation condition on the content of total phenolics was observed for California and Nelson F1. Intensification of agricultural technology decreased the FRAP of the extracts of Nelson F1 and the antiradical properties of California against ABTS cation radical. In the case of Nelson F1 the economic method of cultivation increased the antiradical activity of the extract against DPPH radical. The infection by fungi decreased the content of total phenolics in the *rapeseed* extract and changed the profile of individual phenolic compounds.

Biography

Ryszard Amarowicz has completed his graduation of a Master of Science in Human Nutrition at the University of Warsaw (Poland) in 1979, followed by the attainment of a PhD at the Faculty of Agriculture of the University of Olsztyn (Poland). Since 1989, he has developed his scientific career at the Institute of Animal Reproduction and Food Research of the Polish Academy of Sciences, serving before the role of Assistant Professor (1989-2001), followed by that of Associate Professor (2001-2011) and finally Professor (2011-now), where he currently also holds the position of Head of the Department of Chemical and Physical Properties of Food. He got his scientific skills by means of numerous fellowships at leading foreign research institutes in Japan, Canada and USA.

r.amarowicz@pan.olsztyn.pl

Notes: