



Agricultural Journals

Czech Journal of

FOOD SCIENCES

[home](#) [page](#) [about us](#) [contact](#)

[us](#)

Table of Contents

IN PRESS

CJFS 2014

CJFS 2013

CJFS 2012

CJFS 2011

CJFS 2010

CJFS 2009

CJFS 2008

CJFS 2007

CJFS 2006

CJFS 2005

CJFS 2004

CJFS 2003

CJFS 2002

CJFS 2001

CJFS Home

Editorial Board

For Authors

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Submission**

For Reviewers

- **Guide for Reviewers**
- **Reviewers Login**

Subscription

Czech J. Food Sci.

R. Fabiani, P.

Rosignoli, R. Fucelli,

**F. T. Teravanti, A. De
Bartolomeo, G.
Morozzi:
Involvement of
Hydrogen Peroxide
Formation on
Apoptosis Induction
by Olive Oil Phenolic
Compounds**

Czech J. Food Sci., 27 (2009): S197-
S199

In the present investigation the ability of different phenolic compounds, either present or not in olive oil, to induce both apoptosis on tumour cells and H_2O_2 accumulation in cell culture medium was assessed. Among the phenols studied we found that tyrosol (*p*-HPEA), homovanillic alcohol and protocatechuic, *o*-coumaric, vanillic, homovanillic, ferulic and syringic acids did not induce either apoptosis on HL60 cells or H_2O_2 accumulation, while hydroxytyrosol (3,4-DHPEA), 3,4-

dihydroxyphenylacetic acid (3,4-DHPA), 3,4-dihydroxy-hydrocinnamic acid (3,4-DHHC) and gallic acid induced both apoptosis and accumulation of H_2O_2 in the culture medium which were significantly reduced by catalase. In contrast, the dialdehydic form of elenoic acid linked to hydroxytyrosol (3,4-DHPEA-EDA) and to tyrosol (*p*-DHPEA-EDA) induced high level of apoptosis not reduced by catalase. Finally, oleuropein exerted a weak pro-apoptotic effect not mediated by H_2O_2 release. From these results it is evident that: (i) the catechol moiety of phenols is necessary but not sufficient to induce apoptosis and H_2O_2 accumulation; (ii) the 3,4-DHPEA metabolism may partially reduce its pro-apoptotic potential; (iii) the pro-apoptotic activity of 3,4-DHPEA-EDA and *p*-DHPEA-EDA is not mediated by H_2O_2 releasing activity.

Keywords:

olive oil; phenols; apoptosis; hydrogen peroxide

[[fulltext](#)]

© 2011 Czech Academy of Agricultural
Sciences

XHTML11 VALID

CSS VALID