

Extended Abstract

# Antioxidant Properties and Cytoprotective Effect Against H<sub>2</sub>O<sub>2</sub>-Induced Cytotoxicity in Mouse Fibroblasts Cells (L-929) of Horseradish Leaves †

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Horseradish (*Armoracia rusticana* L.) is a perennial plant from the Brassicaceae family native to Europe and Asia, and globally widespread through cultivation. Horseradish contains phenolic compounds (flavonoids and phenolic acids), vitamins (C and B1), minerals (iron, potassium, calcium and magnesium), and essential oils (sinigrin) [1,2]. Roots, leaves and/or isolated compounds from horseradish possess antioxidant, antimicrobial, chemopreventive, anti-inflammatory, gastroprotective and hypocholesterolaemic activities [3,4]. The aim of this paper was to investigate the antioxidative activity, in vitro cytotoxicity, and in vitro cytoprotective effect of *A. rusticana* (leaves) against H<sub>2</sub>O<sub>2</sub>-induced cytotoxicity in mouse fibroblasts cells (L-929).

Plant material—leaves of *A. rusticana*—were harvested from Dambovită County, Romania, Europe. The antioxidant activity was assessed using the Sanchez-Moreno assay [5]. In vitro cytotoxicity of the plant extract on L-929 murine fibroblast cell line was evaluated through MTS method. The protective effect of *A. rusticana* against oxidative stress on L-929 mouse fibroblast cells was performed by pretreatment with different concentrations of *A. rusticana* (5, 10, 25 µg/mL) for one hour and for 24 h before exposing to H<sub>2</sub>O<sub>2</sub> to induce oxidative stress.

The present investigation showed that *A. rusticana* extracts have a moderate cytotoxic activity (IC<sub>50</sub> = 70.40 ± 0.305 µg/mL) and a significant antioxidant effect. A prolonged pretreatment (24 h) with *A. rusticana* extract was able to protect L-929 murine fibroblast cells against H<sub>2</sub>O<sub>2</sub>-induced cytotoxicity, while in the case of the short-term pretreatment (one hour) almost no effect was observed.

The results suggest that horseradish leaves exert great potential for the development of dietary supplements.

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