

# TOXICOLOGY & APPLIED PHARMACOLOGY

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## The anti-proliferative activity of *Arctium lappa* alcoholic extract on B164A5 and A375 cell lines

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**Statement of the Problem:** Our approach was justified by the fact that recent research has been leading to the discovery of new therapeutic alternatives to classical medication, alternatives that offer increased safety and efficacy and fewer side effects. The aim of the study was to determine the individual polyphenol content of 10% *Arctium lappa* (burdock root) alcoholic extract and to evaluate the antiproliferative properties of the extract on “*in vitro*” study models using tumoral cell lines (B164A5 murine melanoma and A375 human melanoma).

**Methodology:** The *Arctium lappa* extract was obtained respecting the Romanian Pharmacopoeia 10<sup>th</sup> edition, the plant being lyophilized (with Ilshin Kryptonstraat 11, 6718WR EBE lyophilisator to -55°C, 5 mTorr pressure and 24 hours lyophilization time). The polyphenols were determined by LC-MS and the *in vitro* evaluation effects by the MTT proliferation test, using cell lines B164A5 (murine melanoma) and A375 (human melanoma). After seeding the cells at a concentration of 6x10<sup>3</sup> cells in 96 well plates, the extract was added in two different concentrations (50µg/ml respectively 100µg/ml). In parallel, DMSO as control was used.

**Conclusion:** After 48 hours of exposure, using the B164A5 and A375 cell lines and applying the 10% extract at concentrations of 50µg/ml and 100µg/ml, we did not see an increase in the number of apoptotic and necrotic cells; the chromatographic analysis of *A. lappa* alcoholic extract evidenced the presence of the polyphenolic compounds, the greatest concentrations were ascertained for epicatechin (4355.09µg/mL), rosmarinic acid (2165.54) and rutin (1890µg/mL), substances with strong antioxidant proprieties.

### Biography

Eugenia Dumitrescu (DVM, PhD) has her expertise in the veterinary field, reproductive toxicology, heavy metals, phytotherapy and oxidative stress in animals. She is Associate Professor (PhD degree from 2008, habilitated from 2017) at the Faculty of Veterinary Medicine from Banat's University of Agriculture and Veterinary Medicine “King Michael I of Romania” from Timisoara, Romania.

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