UNIVERSITY OF LIFE SCIENCES "KING MIHAI I" FROM TIMIȘOARA
"MULTIDISCIPLINARY CONFERENCE ON SUSTAINABLE DEVELOPMENT"
25 - 26 May 2023

"MULTIDISCIPLINARY CONFERENCE ON SUSTAINABLE DEVELOPMENT"

THE BIOLOGICAL POTENTIAL OF *CHELIDONIUM MAJUS L.* EXTRACT IN A-375 MALIGNANT MELANOMA CELLS

[1,4]Românu Ramona, [3]Anton Alina, [3]Macasoi Ioana, [2,4]Tripon Maria Roberta, [3]Dehelean Cristina, [2,4]Boldura Oana Maria, [1,4]Tulcan Camelia*

[1]Faculty of Engineering and Applied Technologies, Life Sciences University "King Mihai I" from Timișoara,
[2]Faculty of Veterinary Medicine, Life Sciences University "King Mihai I" from Timișoara
[3]Victor Babeș University of Medicine and Pharmacy, Timișoara
[4]ULST Research Institute for Biosafety and Bioengineering

cameliatulcan@usvt.ro

INTRODUCTION

Medicinal plants are a continuous source of therapeutic solutions, some being well-known since ancient times, others being in a permanent research. ***Chelidonium majus L. (C. majus)*** *is a representative of the Papaveracea family, being known under the name of greater celandine. In the literature it is mentioned that chelerythrine and sanguinarine are some of the most prominent alkaloids found in roots while chelidonine, coptisine, and berberine are usually found in the aerial parts of the plant. Sanguinarine was found one of the most potent antitumor agents, which is capable to intercalate strongly with DNA. Berberine was found to manifest antiproliferative properties in various cancer types and to induce apoptosis in vitro, in human cancer cells, such as pancreatic, breast, prostate, cervical, and lung.*

THE AIM OF THE STUDY

was to assess the potential antitumor effects of *C. majus extracts* on human melanoma cells - A375 - and to evaluate it in terms of cell viability and morphology changes.

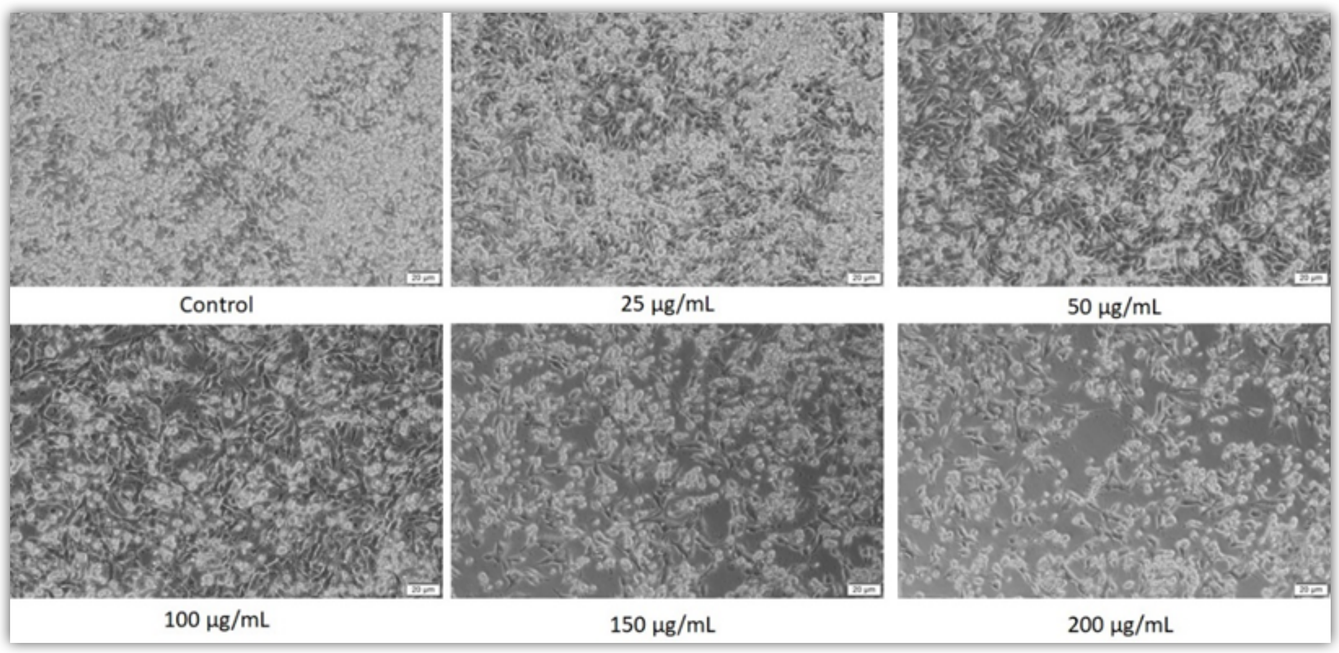
Materials and methods

Cells were cultured in their specific medium - DMEM, supplied with 10% FBS and 1% of penicillin/streptomycin mixture. Cell growth was carried out in a humidified incubator, following standard conditions: 5% CO2 and a temperature of 37 °C. Cells were morphologically observed using an IX73 inverted microscope.

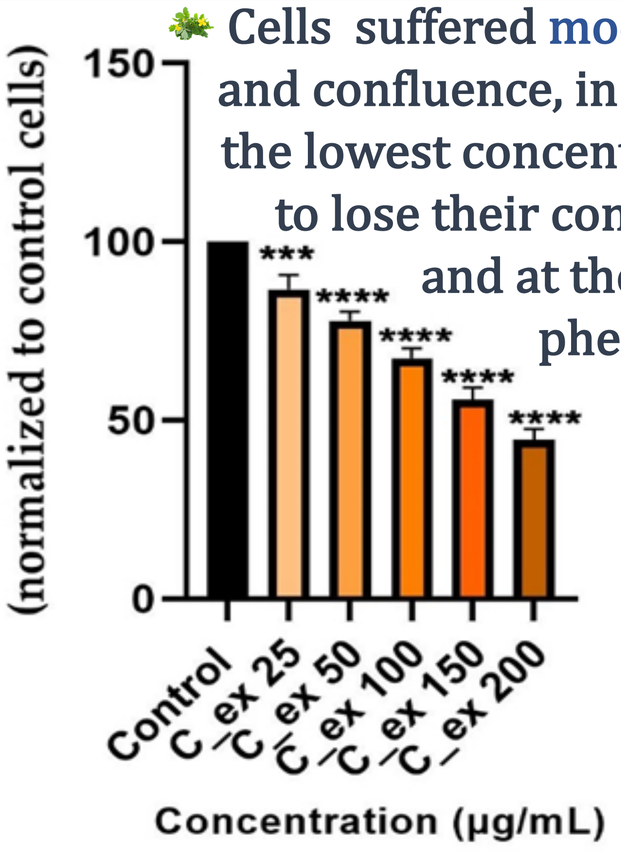
Viability test- MTT assay

- (1) cells were cultured in 96-well plates;
- (2) after reaching the confluence, cells were incubated with five increasing concentrations of extract (25, 50, 100, 150, and 200µg/mL) 24 hours;
- (3) 10 µL/well of MTT solution (kit I) was added to each well, followed by a 3-hour incubation;
- (4) the formed formazan crystals were dissolved in 100 µL kit II, for 30 min, in the dark;
- (6) the reduced MTT was analyzed spectrophotometrically at 570 and using the Cytation 5 microplate reader.

Results and discussions



Cells suffered modifications in cell morphology and confluence, in a dose-dependent manner. At the lowest concentration (25 µg/mL), cells tend to lose their confluence and elongation easily, and at the highest concentration, these phenomena are more observable.



The extract exerted a concentration-dependent cytotoxic effect. At the lowest concentration (25 ug/mL) - cell viability was reduced by approximately 87%, while at the highest concentration (200 ug/mL) the percentage of viable cells decreased by nearly 45%.

Acknowledgement

This research paper was conducted with technical support from the Antioxidant Systems Research Laboratory (A1c) team, part of the Institute for Biosafety and Bioengineering Research (ICBB), University of Life Sciences "King Mihai I" from Timisoara as well as the Pharmacological Research Center, Victor Babeş University of Medicine and Pharmacy, Timișoara.