



PSE Meeting 2022

September
19-22
Iasi, Romania

Natural
Products
in Drug Discovery
and Development -
Advances and
Perspectives

Abstracts
Book

www.psemeetingiasi2022.eu

Analysis of the elemental composition of *Actinidia Arguta* lindl. leaves

Nadiia Kovalska¹, Uliana Karpiuk¹, Nadiia Skrypchenko², Tatiana Stasiv³

¹Department of Pharmacognosy and Botany, Bogomolets National Medical University, Kyiv, Ukraine

²Department of Fruit Plants Acclimatization, M.M. Gryshko National Botanical Garden of National Academy of Sciences of Ukraine, Kyiv, Ukraine

³State Enterprise "Ivano-Frankivsk Scientific and Production Center for Standardization, Metrology and Certification", Ivano-Frankivsk, Ukraine

Aim: Kiwiberry fruits (*Actinidia arguta* Lindl.) are used as a vitamin product and laxative, and their leaves are promising raw materials. Minerals are also extracted from plant raw materials during obtaining total extracts. Macro- and microelements affect the accumulation of secondary metabolites in plants and can be used for the prevention and treatment of mineral deficiency. The aim of our work was to study the elemental composition of *A. arguta* leaves.

Methodology: *A. arguta* leaves were harvested in the research area of the Department of Fruit Plants Acclimatization of the M.M. Gryshko National Botanical Garden in August 2020. Determination of the qualitative composition and quantitative content of the elements was performed by inductively coupled plasma atomic emission spectrometry using iCAP 7000 Duo.

Results: The content of 18 macro- and microelements was determined. It is established that the accumulation of macro- and microelements in *A. arguta* leaves occurs according to the following pattern: Ca (15400 mg/kg) > P (11154 mg/kg) > Mg (4007 mg/kg) > Si (195.1 mg/kg) > Ba (140.6 mg/kg) > Fe (93.02 mg/kg) > Al (90.97 mg/kg) > Mn (85.43 mg/kg) > B (83.01 mg/kg) > Zn (34.44 mg/kg) > Cu (18.03 mg/kg) > Ni (1.940 mg/kg) > Mo (0.95 mg/kg) > Se (0.698 mg/kg) > Li (0.58 mg/kg) > Cr (0.497 mg/kg) > V (0.097 mg/kg) > Na (<0.001 mg/kg). The highest content was found for calcium, phosphorus and magnesium. Heavy metals were found in small amounts: Pb (1.18 mg/kg), As (< 0.001 mg/kg), Cd (< 0.001 mg/kg), Hg (0.026 mg/kg). The obtained data do not exceed the permissible content of these elements in plant-based dietary supplements regulated by the State Pharmacopoeia of Ukraine 2.0.

Conclusions: *A. arguta* leaves can be a source of calcium, phosphorus and magnesium, does not accumulate toxic metals, which makes it possible to use it as a medicinal plant raw material to create new dietary supplements.

References

1. Almeida D, Pinto D, Santos J et al (2017) *Food Chemistry* 259: 113-121.
2. *State Pharmacopoeia of Ukraine*, 2nd ed., Kharkiv: State Enterprise "Ukrainian Scientific Pharmacopoeial Center for Quality of Medicines", 2014, vol. 3, 732 p.