International Journal of Agriculture and Environmental Research

ISSN: 2455-6939

Volume: 10, Issue: 02 "March-April 2024"

LEAD AND STRONTIUM ISOTOPE EVIDENCE FOR LOCAL HERBAL VARIETIES DUE TO THE ELEMENTAL SOIL CHEMISTRY

[1*]Biljana Balabanova, [2]Liping Fan

[1]Faculty of Agriculture, Goce Delcev University, The Republic of North Macedonia.

[2]College of Information Engineering, Shenyang, University of Chemical Technology, Shenyang, Liaoning Province, China.

*Corresponding Author

DOI: https://doi.org/10.51193/IJAER.2024.10210

Received: 30 Mar. 2024 / Accepted: 15 Apr. 2024 / Published: 27 Apr. 2024

ABSTRACT

The aim of this study was to evaluate lead and strontium composition (total content and isotope ratios) in several herbal species: rosemary (*Salvia Rosmarinus)*, thyme (*Thymus vulgaris)*, basil (*Ocimum basilicum*), sage (*Salvia officinalis*), yellow wort (*Blackstonia perfoliate*) and chamomile (*Matricaria chamomilla)* with regional occurrence in the area of the Republic of North Macedonia. Furthermore, the elements' isotope ratios were corelated with the average data for the corresponding elements in soil samples (top layer). Samples of yellow wort (*Blackstonia perfoliate*) were used for comparative analysis to the same species obtained in market in China. Several metrics has been applied for authenticity testing of the samples: total lead and strontium content, as well as lead and strontium isotopic ratios. Element content was measured with validated method for isotopic measurement with inductively coupled plasma with mass spectrometry (ICP-MS).

Keywords: Isotopic measurement, Lead, Strontium, Soil chemistry, ICP-MS

1. INTRODUCTION

Soil is an extremely complex and variable medium. Soil structure plays a significant role in determining its ability to perform its functions. Any damage to soil structure also damages other environmental media and ecosystems [1].

