

## VALORISATION OF SAME TERPENES FROM VEGETABLE WASTES

Alexandru CIOCARLAN\*, ORCID ID: 0000-0002-0776-5095

*Institute of Chemistry, Laboratory "Chemistry of Natural and Biologically Active Compounds",  
Chisinau, Republic of Moldova*

\*Corresponding author: Alexandru Ciocarlan, [algociocarlan@yahoo.com](mailto:algociocarlan@yahoo.com)

**Introduction.** The valorisation of vegetable waste from various economic activities, which are still little explored, is a major current concern of scientists. They are trying to develop green and sustainable methodologies for utilization of these important sources of bioactive components that belong to various groups of natural compounds. In this case, the use of natural sources or food products can be avoided, ensuring the ecological protection of the environment and food safety.

A special place in the range of biologically active natural compounds is occupied by diterpenoids and triterpenoids. The products or active principles obtained from them are widely used in perfumery, cosmetics, agriculture, tobacco industry, pharmaceuticals and other fields of human activity.

In the Laboratory "Chemistry of natural and biologically active compounds" there is a rich experience regarding the isolation and chemical transformation of terpenic compounds from vegetable waste, including local ones. Using known or new processes, here were isolated diterpenoids - (-)-sclareol from concrete of Clary sage (*Salvia sclarea* L.), (+)-larixol and larixyl acetate from oleoresin of Larch sp., ent-trachilobanoic and ent-kaurenoic acids from sunflower wastes and triterpenoids - ursolic and oleanolic acids from lavender wastes and apple pomace.

**Material and methods.** Experimental work included extraction methods such as Soxhlet or ultrasound-assisted, column chromatographic separations, thin layer chromatography (TLC), gas chromatography-mass spectrometry (GC-MS) and high-performance liquid chromatography (HPLC) analyses. Chemical transformations of starting di- and triterpenoids were performed by conventional and non-conventional (microwave, photochemical, electrochemical) methods of synthesis. The structures of synthesized compounds were proved by spectral methods (IR and NMR), mass-spectrometry and X-rays analysis on single crystal. Their biological activity was tested in vitro by antibacterial assessments.

**Results.** As a result of the research, based on the mentioned compounds, dozens of natural analogs, odorous or biologically active compounds were synthesized. The research results were published in ISI-indexed journals and protected by patents.

**Conclusions.** This research is of great practical importance, but unfortunately, it is poorly applied due to the lack of requests from local producers or interested persons.

**Keywords:** *apple pomace, Clary sage, diterpenes, Larch sp., lavender, sunflower, synthesis, triterpenes.*

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