Section 4. Chemistry

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1-O-METHYLEMODIN AND STIGMASTEROL COMPOUNDS FROM THE UNDERGROUND PART OF *RUMEX PAMIRICUS* RECH. F. *(POLYGONACEAE)*

Abstract. Two known compounds has been isolated from the chloroform fraction extract of *Rumex pamiricus* roots. Their structures were elucidated by extensive spectroscopic evidence and chemical methods. Qualitative analyses of compounds by TLC analysis were also evaluated.

Keywords: *Polygonaceae, Rumex pamiricus,* 1-O-methylemodin, stigmasterol. MS, ^{1}H and ^{13}C NMR, DEPT, HSQC, HMBC, TLC.

1. Introduction

The basis of the technology for the isolation of 1-O-methylemodin and stigmasterol compounds is the extraction of raw materials with various organic solvents followed by chromatographic purification. Classical extraction methods (percolation and maceration) are time-consuming and laborious. The herb *Rumex pamiricus* Rech. f. belongs to the family of *Polygonaceae* and there are over 250 types on the earth and 16 types in Uzbekistan [1; 2].

2. Extraction and Methods

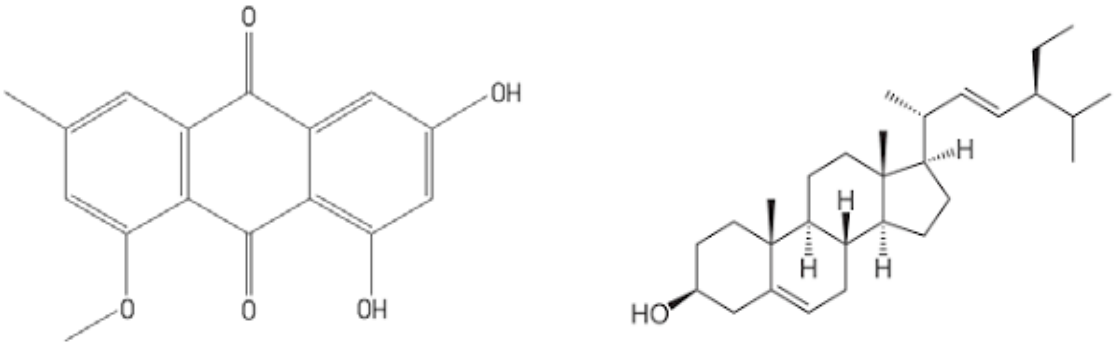
The roots of the herb *Rumex pamiricus* dried at room temperature, in shade. The pounded herb roots were first subjected to extraction in chloroform, then three times in 70% acetone hydrous solution. The acetone extract was distilled under vacuum, the remaining water solution was subjected to extraction with ethyl acetate. Ethyl acetate extracts were collected and were dehydrated by adding anhydrous salt Na2SO4. The dehydrated extract was filtered, its concentration increased under vacuum, the total phenols were precipitated by adding pure hexane to the condensed extract. The created precipitate was washed, and filtered and the extracted total phenols of chloroform and ethyl acetate fractions constituted 3.4% of the herb dry weight.

3. Isolation and Results

The chloroform fraction subjected with column chromatography on KSK silica gel, eluted with a mixture of extraction benzene–ethyl acetate: (50:1, 40:1, 30:1, 20:1 and 10:1). The structure of 1-O-methylemodin (1) and stigmasterol (2) was established on the basis of the analysis of the data of MS (Mass spectrometry), ^{1}H and ^{13}C NMR spectra (Nuclear Magnetic Resonance), and of the DEPT (Distortionless Enhancement of Polarization Transfer), HSQC (Heteronuclear Single Quantum Coherence) and HMBC (Heteronuclear Multiple Bond Correlation) experiments. Qualitative analyses of major phenolics by TLC (Thin Layer Chromatography) analysis were also evaluated.

4. Conclusion

In our previous articles, the information provided about the chemical composition of *Rumex pamiricus* and *Rumex confertus* plants and their biological activities [3; 4; 5; 6; 7; 8]. Continuous studies on the chemical composition of *Rumex pamiricus* two known compounds has been isolated from the chloroform fraction extract of *Rumex pamiricus* roots. Their structures were elucidated by extensive spectroscopic evidence and chemical methods. Qualitative analyses of compounds by TLC analysis were also evaluated.



1 2

Figure 1. Chemical structures of isolated compounds: 1-O-methylemodin (1), stigmasterol (2)

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