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PHISYCAL AND CHEMICAL STUDYING PEGANUM HARMALA SEED OIL

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Peganum Harmala is widely distributed in all republics of Central Asia and in the south part of Kazakhstan; it also grows in the dry deserts in the southern districts of the European part of the country and in the Caucasus. *Peganum Harmala* seeds are used in medicine as antiseptic means. In India they are set fire for fumigation of wounds. Folk-medicine of Asian countries recommends decoction from *Peganum Harmala* seeds for exciting Central Nervous System in several diseases. Potion is also taken for abdominal pain relief, complications of cardiovascular system, radiculitis.

The aim of the work. The aim of our researches is obtaining seed oil, studying its fatty-acidic composition and alkaloids.

Methods and materials: 268 g of *Peganum Harmala* seeds were grinded up and put into dividing funnel with a content 1l, filled up with petrol ether until forming unruffled surface. In 12 hours petrol ether extraction was pour out, and stuff was filled up with new portion of extragent. This operation was repeated until exhaustion of vegetable oil in the stuff (testing on the filter paper). Mixed petrol-ether extract was sublimated and thickened in the vacuum. Non-fat seeds were dried at the room temperature 22-25^0 C and extracted with 95% ethyl alcohol. Extracting was continued until obtaining colourless extract. Mixed alcohol extractions were passed through pumps, which were filled up with acid form of cationite CP-1. Tide speed is 15-20 drops per minute. There has been checked the presence of alkaloids in eluates by the Dragendorf reactive. There has been conducted ion exchange with vegetable bases and pumps with cationite were washed by ammonium ethylic alcohol until obtaining colourless eluate. They were mixed with alcohol extraction, which was passed through pump with cationite (alcohol extract of neutral and acidic substances). Eluate was evaporated and dried. Eduction of alkaloid sum is 9.50g.

Results: There has been studied fatty-acidic composition of *Peganum Harmala* seeds by Gas-chromatography method: among non-saturated acids in researching sample there have been predominated lynol acid – 65.64%, oleic acid - 21.74%. Among saturated acids in researching sample there have been predominated palmitin and stearin acids - 9.77%. Sum of non-saturated oil acids is 89.02 % and saturated oil acids is 10.98%. There has been obtained vegetable oil 10.6% from *Peganum Harmala* seeds by the extraction method. There has been studied some quality indices of seed oil: p^{20} 0908-0.912; soaping number is 170-178; iodine number is 115-125; acidic number is 2.4; ether number is 167,6. There has been studied quantitative content of alkaloid sum: minute delay of Garmalin is 8.058. Eduction of alkaloid sum is 3.50%.

Таблица 1

Contain oil acids seed oil P.harmala

Acids	Seed oil P.harmala
Miritin	0.09
Palmithin	6.89
Palmitiolein	0.14
Marharin	0.08
Sthearin	2.88
Olein	21.74
Linolen	1.22
Linolev	65.64

Arahin	0.63
Eykozen	0.28
Begenon	0.33
Lignitsen	0.08

Conclusions: 1. There has been obtained vegetable oil 10.6% from *Peganum Harmala* seeds by the extraction method. There has been determined fatty-acidic content of non-saturated oil acids - 89.02 % and saturated oil acids - 10.98%. Bases sum of oil is 0.29%.

2. There has been obtained 3.50% of alkaloid sum. There has been studied the content of alkaloid sum by HELC (Highly Effective Liquid Chromatography) method. The main components are garmin and garmalin (90.2%).

Literature:

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PARTIAL METABOLIC DEUTERIUM OXIDE LABELING FOR MEASUREMENT OF LIPID TURNOVER RATES

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Purpose: Lipids in cells are constantly synthesized and broken down to meet the energy needs under varying physiological conditions, which generates their complex metabolic fluxes within and between cells. Disordered lipid metabolism is closely implicated with many diseases such as arteriosclerosis and diabetes for which lipid metabolic enzymes are emerging drug targets (1). Thus, it is critical to establish an analytical technique to investigate lipid kinetics *in vivo* for elucidating the mechanisms controlling pathogenesis of disorders of lipid metabolism. We have developed a partial metabolic labeling method based on deuterium oxide to measure the lipid turnover rates on lipidome scale.

Materials and methods of research: HPLC grade methanol, water, chloroform, isopropanol, and acetonitrile were all purchased from Thermo Fisher Scientific (Waltham, MA, USA). HeLa cell line was obtained from Korean Collection for Type Cultures (Daejeon, Korea). Fetal bovine serum and penicillin streptomycin were purchased from Gibco (Grand Island, NY, USA). Dulbecco's modified eagle medium and trypsin-ethylenediaminetetraacetic acid were supplied by Hyclone (South Logan, UT, USA) and Welgene (Daegu, Korea), respectively. Deuterium oxide (^2H_2O, ^2H 99.9%, atom) was purchased from Cambridge Isotope Laboratories (Andover, MA, USA).

HeLa cells were cultured on 8 dishes with 5% (mol/mol) ^2H_2O enriched media and each dish was used for lipid sampling at 8 time points ranging from 0 to 48 hours of labeling. Lipids were extracted by a small volume of chloroform:methanol (2:1, v/v). Lipid extracts were analyzed with an Agilent 6520 quadrupole time-of-flight mass spectrometer coupled with an Agilent 1260 infinity HPLC system. Mass spectrometry (MS) and tandem mass spectrometry (MS/MS) were performed in both positive and negative ion modes. The acquired LC-MS/MS spectra were processed with MassHunter qualitative analysis software and lipids were identified by searching the tandem mass spectra against LipidBlast using NIST MS PepSearch platform.

The measurement of lipid turnover rates was based on our approach employed to determine protein turnovoer rates reported elsewhere (2). First, the peak intensities of mass isotopomers for the identified