ko‘rsatkich qiymatlari 1,88; 3,56; 4,01; 6,86; 9,18; va 12,45 bo‘lgan standart fiksanallardan foydalanildi. Tayyorlangan eritmalarni pH ko‘rsatkichi «Metler Toledo» rusumli pH-metr yordamida aniqlab olindi. Tajriba uchun mefedronning standart namunasidan 0,01 g (a.t.) olinib sig‘imi 100 ml bo‘lgan o‘lchov kolbalariga solindi va 4-5 ml tozalangan suvda eritilib, so‘ngra eritma hajmi ushbu suv yordamida belgisigacha etkazildi. Ushbu ishchi standart eritmasidan 1 ml olinib sig‘imi 100 ml bo‘lgan konussimon kolbalarga solindi va ularga turli pH-muhitiga mos universal bufer eritmalardan 9,0 ml qo‘shilib yaxshilab aralashtirilib 1 soatga xona haroratida qoldirildi. Belgilangan vaqt o‘tgach ushbu aralashmalar ajratuvchi voronkalarga o‘tkazildi va har biriga alohida-alohida 10 ml 5 xil organik erituvchilar qo‘shildi. Aralashmalar 15 daqiqa davomida chayqatildi. Organik erituvchilar qatlamlari suvli qismlardan to‘liq ajralgach ularni chinni idishlarga 5 g suvsiz natriy sulfat tuzi solinib aynan shu erituvchi bilan namlangan filtr qog‘ozlaridan o‘tkazib suvli qatlamdan ajratildi. So‘ngra filtr qog‘ozlar shu erituvchi bilan yuvildi va yuvilgan qismlar asosiy filtratlarga qo‘shildi. Organik erituvchi yordamida olingan ekstraktlar harorati 40-50 °S bo‘lgan suv hammomida portlatildi. Chinni idishdagi quruq qoldiqlar 4-5 ml tozalangan suvda eritildi va ularning sig‘imi 25 ml bo‘lgan o‘lchov kolbasiga o‘tkazildi, so‘ngra belgisigacha tozalangan suv bilan etkazildi. Kolbadagi eritmalar yaxshilab aralashtirilib, ekstraksiyalangan mefedronni miqdori UB-spektrofotometrik usulda tahlil qilindi. Izlanishlarning keyingi bosqichida mefedronni suvli muhitdan ekstraksiyasiga ekstraksiya soni va elektrolitlarni ta'siri o‘rganildi. Tahlillarda elektrolit sifatida natriy xloridning 5% va ammoniy sulfatning 25% eritmalaridan foydalanildi. Ekstraktlar ajratilib yuqorida keltirilgan tartibda quruq qoldiq olinib unda ekstraksiyalangan mefedronning miqdori aniqlandi.

Natijalar: tahlil qilinayotgan mefedronni ekstraksiyalashda qo‘llanilgan organik erituvchilar (xloroform, benzol, geksan, dietil efiri va etilasetat) bilan kislotali va ishqoriy sharoitlarda turli xil natijalar olindi. Mefedronni ekstraksiyalashda etilasetat bilan pH-muhit qiymati 4,01 bo‘lganda uni suvli qavatdan organik erituvchi qavatiga o‘tishining maksimal darajasi 87,0% tashkil qildi. Tajribalarda xloroform, benzol, geksan, dietil efiri kabi organik erituvchilar mefedronni ajratib olishda ekstraksiyalash darajasi nisbatan kam ekanligi qayd etildi. Shuning uchun mefedronni suvli muhitdan ekstraksiya qilishda pH--muhitni 4,01 keltirish hamda organik erituvchi sifatida etilasetat dan foydalanish maqsadga muvofiq deb topildi.

Xulosa: mefedronni suvli muhitdan organik erituvchilar va turli pH-muhit ko‘rsatkichida ekstraksiya tahlil qilish uslubi ishlab chiqildi. Mefedronni UB-spektroftometrik usulda miqdoriy tahlil qilindi va miqdori aniqlandi.

YANTOQ O‘SIMLIGIDAN QURUQ EKSTRAKT OLISH VA UNI TAHLILI

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Dolzarbligi: O‘zbekiston hududlarida keng tarqalib o‘sadigan yantoq (верблюжья колючка) o‘simligini hom ashyosidan quruq ekstrakt olishda ekstragentlarni tanlash, ekstrakt tarkibidagi moddalarga nisbatan kimyoviy reaksiyalar qilindi

Tayanch iboralar: Yantoq - (верблюжья колючка), sirka kislotasi, natriy ishqori, magniy oksidi, Temit (III).

Ishni maqsadi: O‘zbekiston Respublikasida o‘sadigan yantoq o‘simligi to‘liq o‘rganilmagan hisoblanadi. Yuqoridigilardan kelib chiqqan holda yantoq – (Alhagi pseudalhagi - Верблюжья колючка) o‘simligining yer ustki qismidan quruq ekstrakt olindi. Ekstrakt tarkibidagi moddalarga nisbatan kimyoviy sifat reaksiyalar qilindi**.**

Tajriba qismi: Idishga yantoq o‘simligini er ustki qismidan quruq ekstrakt olish maqsadida tegirmon yordamida maydalab kukun holiga keltirilgan aniq tortma 10 gr, olib, 250 ml hajmli kolbaga solib, xom ashyo ko‘milguncha tozalangan suv qo‘shildi, so‘ngra qaynab turgan suv hammomida (90°-100°) 2 soat davomida isitilib issiq holda paxta orqali filtrlab olindi. Qoldiq ikkinchi marotaba ekstraksiya qilindi, shu jarayon yana 3 marotaba qaytarildi. Filtratlar umumlashtirilib, 250 ml chinni koschaga o‘tkazilib qaynab turgan suv hammmomida quruq qoldiq qolguncha bug’latildi va qoldiq qirib olinib, tortib foiz miqdori aniqlandi. Olingan natijalar jadvalda keltirilgan.

Yantoq o‘simlik xom ashyosidan suv yordamida olingan quruq eskstrakt % miqdori

Olingan tortma (gr)	**Aniqlandi**		**Metrologik tavsifi**
	gr	**%**	
10,0	2,32	23,20	$\bar{X}$ = 23,41
10,0	2,30	23,00	S^2= 1,189
			S=1,09
10,0	2,50	25,00	ΔX=3,03
10,0	2,25	22,50	$\Delta\bar{X}$= 1,5
			E= 12,94
			$\bar{E}$=6,45

Yantoq o‘simlik xom ashyosidan olingan ekstraktlarga sifat reaksiyalari o‘rganildi.

1. Natriy ishqor 10% eritmasi qo‘shilganda sariq rang kuzatildi,

2. Temit (III) xlorid eritmasi qo‘shilganda ko‘k – yashil rang hosil bolishi kuzatildi.

3. Mis (II) sulfat eritmasi bilan ishqoriy sharoitda qo‘shilganda ko‘k - siyoh rang hosil bolishi kuzatildi.

4. Eritmaga natriy nitrit, xlorid kislota qo‘shib aralashtirib -β- naftolni ishqoriy eritmasi qo‘shilganida qizil rang hosil bo‘lishi aniqlandi.

Xulosa: Yantoq o‘simligi hom-ashyosidan suv yordamida ekstraksiya qilingach quruq estrakt yig’indisi 23,41% tashkil qildi. Ekstrakt tarkibidagi moddalarga nisbatan kimyoviy sifat reaksiyalar qilinganda ijobiy natijalar olindi.

DETERMINATION OF MAPROTYLINE IN BLOOD AND URINE BY UV SPECTROPHOTOMETRIC METHOD

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Topicality. Maprotyline – (*N*-methyl-9,10-ethaneanthracene-9(10*H*)-propanamine hydrochloride) is a tetracyclic antidepressant of the non-selective neuronal monoamine reuptake inhibitor group. The drug has shown its effectiveness in the treatment of depressive disorders with an anxiety component. A case of serotonin syndrome has been reported following concomitant treatment with maprotyline and mirtazapine. Fatal maprotyline poisoning has been reported after ingestion of 4.5–6 g of the drug; analytical diagnostics have shown that maprotyline concentrations in blood and urine in various fatal cases ranged from 2.0–44.5 mg/L and 12.6 mg/L, respectively. Analytical aspects of the toxicology of maprotyline are not sufficiently developed.

The aim of the research. To develop the conditions for maprotyline determination in blood and urine by UV spectrophotometric method after liquid-liquid extraction as sample preparation step.

Materials and methods. Model samples of human biological fluids spiked with maprotyline were studied in the research. The antidepressant was isolated from blood and urine by the method of liquid-liquid extraction with methylene chloride from an alkaline aqueous medium at pH 9 in the presence of ammonium sulphate as a salting-out agent. Biogenic co-extractive impurities from biological fluids were removed by extraction with hexane from an acidic medium at pH 1. The red blood cell mass was pre-precipitated by adding 10% trichloroacetic acid solution. The quantitative content of the drug in the extracts was determined using the UV spectrophotometric method after additional TLC purification. Chromatograms were developed in two mobile phases sequentially: first in chloroform followed by using toluene-acetone-ethanol-25% ammonium hydroxide solution (45:45:7.5:2.5) mobile phase. Dragendorff-Mounier reagent was used for visualization.

Results. Maprotyline was detected on the chromatograms as orange spots with R_f 0,31±0,03. Identification of the drug in the extracts from the biological fluids was carried out by UV spectra, which coincided with the standard solution of the antidepressant under study in 0.1 M hydrochloric acid solution and had light absorption maxima at wavelengths of 265±2 and 272±2 nm. Quantitative determination of the drug in the extracts was performed at λ_{max}=272 nm using the equation of the calibration curve $y=(0.00320\pm5\times10^{-5})\times x+(0.03\pm0.01)$, ($r$=0.999; $S_o^2=2.0\times10^{-4}$; S_a=0.00521), which was linear in the range of the analyte concentrations of 20.0–360.0 μg/mL. Limit of Detection (LOD) and Limit of Quantification (LOQ) were calculated from the standard deviation of y-intercept (S_a) and a slope b; they were, respectively, 5.4 μg/mL and 16.3 μg/mL. The optimal conditions for maprotyline isolation from blood and urine were based on the preliminary study of the extraction yield of the drug depending on the pH of the aqueous solutions, kinds of organic solvents and salting-out agents. A wide range of organic solvents, sodium sulphate and ammonium sulphate as salting-out agents were tested at the aqueous phase pH ranging from 1 to 12. The recovery of maprotyline from blood was 49.3±3.5% and from urine it was equal to 82.6±2.2%.

Conclusions. The method for maprotyline determination in blood and urine by UV spectrophotometric method after isolation using liquid-liquid extraction have been developed. Recovery values of the developed sample pretreatment steps were determined in the range of the drug concentrations of 10–50 μg/mL and 4–20 μg/mL for blood and urine respectively. The suitability of the UV spectrophotometric method for maprotyline determination in the biological fluids has been proven, which was confirmed by a number of the validation parameters relating to the expected content of the antidepressant under study in the biological fluids in fatal poisonings. The results obtained can be used for forensic toxicological examinations in acute and fatal poisonings with antidepressant drugs.