

# БИОМЕДИЦИНА ВА АМАЛИЁТ ЖУРНАЛИ

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# БИОМЕДИЦИНА ВА АМАЛИЁТ ЖУРНАЛИ

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## STUDY OF THE ANALGESIC ACTIVITY OF N-BENZYL CYTHIZINE DERIVATIVES AND 1-PHENYLISOQUINOLINE DERIVATIVES

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### ABSTRACT

In modern medicine, painkillers are widely used to treat diseases and complications of some diseases. One of the main tasks facing researchers is to study the spectrum of action of alkaloids extracted from plants that contain substances with analgesic properties.

**Keywords:** "Hot plate", "Acetic acid twitch", "Acetylcholine twitch" tests, "twisting" syndrome, pain reflex, analgesic activity.

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## ИЗУЧЕНИЕ АНАЛЬГЕТИЧЕСКОЙ АКТИВНОСТИ ПРОИЗВОДНЫХ N-БЕНЗИЛЦИТИЗИНА И ПРОИЗВОДНЫХ 1-ФЕНИЛИЗОХИНОЛИНА

### АННОТАЦИЯ

В современной медицине обезболивающие средства широко применяются для лечения заболеваний и их осложнений. Одной из основных задач, стоящих перед исследователями, является изучение спектра действия алкалоидов, выделенных из растений, содержащих вещества с анальгетическими свойствами.

**Ключевые слова:** тесты «Горячая пластина», «Укусных корчей», «Ацетилхолиновых корчей», синдром «скручивания», болевой рефлекс, анальгезирующая активность.

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## SITIZINNING N-BENZILLI HOSILALARI VA 1-FENILIZOXINOLIN HOSILALARINING OG'RIQ QOLDIRUVCHI FAOLLIGINI O'RGANISH

### ANNOTATSIYA

Zamonaviy tibbiyotda kasalliklar va ba'zi kasalliklarning asoratlarini davolashda og'riq qoldiruvchi dori vositalari keng ko'lamda qo'llaniladi. Tarkibida og'riq qoldiruvchi xususiyatga ega bo'lgan modda saqlovchi o'simliklardan olingan alkaloidlarning ta'sir doirasini o'rganish tadqiqotchi olimlarning oldida turgan asosiy vazifalaridan biridir.

**Kalit so'zlari:** «Issiq plastinka», «Sirka kislotali burishish», «Atsetilxolinli burishish» testlari, «burishish» sindromi, og'riq refleksi, analgetik faollik.

**Kirish:** Samaralilik darajasi yuqori va xavfsiz ta'sir xususiyatiga ega analgetiklarga bo'lgan katta ehtiyoj zamonaviy tibbiyotning dolzarb muammolaridan biri bo'lib qolmoqda. Chunki hozirgi kunda klinik amaliyotda ishlatiladigan analgetiklar bir qator nojo'ya ta'sirlar klib chiqishiga sabab bo'lmoqda, masalan, narkotik ta'sirga ega bo'lgan analgetiklar narkotik moddaga nisbatan to'belik, gallyusinatsiyalar va nafas depressiyasini keltirib chiqaradi. Nosteroid yallig'lanishga qarshi dori vositalari yurak-qon tomir va oshqozon-ichak tizimlarida bir qator nojo'ya ta'sirlarni keltirib chiqarishi tadqiqotlar natijasida aniqlangan.

Shunday ekan, olimlar va ilmiy tadqiqotchilar oldida yuqoridagi nojo'ya ta'sirlar kuzatilmaydigan, zaharlilik darajasi kam bo'lgan o'zining tarkibida alkaloidlar saqlovchi o'simliklardan olingan dori preparatlarni o'rganish katta maqsad sifatida qaralmoqda.

Tadqiqotlarimiz davomida sitizinning N-benzilli hosilalari hamda 1-fenilizoxinolin hosilalarining og'riq qoldiruvchi faolligini o'rgandik. O'rganilayotgan moddalarimiz zaharlilik darajasini aniqlovchi Stefanov tasnifiga ko'ra IV guruhga kirishi tajribalarda o'z isbotini topdi. O'rganilayotgan moddalar «Issiq plastinka» testida 1.0-5.0 mg/kg dozalarda og'riq qoldirish faolligi 50% dan yuqori natijani ko'rsatdi. «Sirka kislotali burishish» testida moddalarning 0.5-5.0 mg/kg dozalarda og'riq qoldiruvchi aktivligi 60% dan yuqoriligi aniqlandi. «Atsetilxolinli burishish» testida moddalarning 1.0-5.0 mg/kg dozalarida og'riq qoldirish aktivligi 50% dan yuqoriligi aniqlandi.

**Tadqiqotning maqsadi:** Sitizinning N-benzilli hosilalari va fenilizoxinolin hosilalarining og'riq qoldiruvchi faolligini o'rganish.

#### **Materiallar va tadqiqot usullari:**

Olib borilgan tadqiqotlarimizda sitizinning N-benzilli hosilalari va fenilizoxinolin hosilalarining og'riq qoldiruvchi faolligi quyidagi testlarni o'tkazish orqali aniqlandi:

**1. «Issiq plastinka», «Sirka kislotali burishish», «Atsetilxolinli burishish» testlari yordamida og'riq qoldiruvchi faolligini aniqlash:**

«Issiq plastinka» testi bosh miyaning markaziy tuzilmalari darajasida og'riq sezuvchanligini aniqlash uchun ishlatiladi. Ushbu test panjalar issiq yuza bilan aloqa qilganda og'riq refleksining yuzaga kelganligini ko'rsatuvchi diskomfort (noqulaylik) belgilari paydo bo'lgunga qadar ketgan vaqtни o'lchashga asoslangan. Tajriba hayvonlar ehtiyotkorlik bilan 57<sup>0</sup>C gacha qizdirilgan issiq plastinkaga joylashtirildi. Noqulaylik belgilarining paydo bo'lish vaqti hisoblab borildi. Har bir modda kamida 6 dona sichqonda sinovdan o'tkazildi. Tajriba uchun og'irligi 20-22 g bo'lgan 204 dona oq tajriba sichqonlardan foydalanildi.

«Sirka kislotali» burishish testi vitseral og'riqni baholash uchun qo'llaniladi. Og'riq qorin bo'shlig'iga sirka kislotasining 2.5% eritmasini 250.0 mg/kg dozada yuborish orqali qo'zg'atildi, bu esa «burishish» sindromining paydo bo'lishiga olib keladi. Tajriba 20-22g og'irlikdagi 204 dona oq tajriba sichqonlari ustida olib borildi. O'rganilayotgan moddalar tajriba guruhi hayvonlariga sirka kislotasi kiritilishidan 60 daqiqa oldin og'iz orqali yuborildi. Tajriba va nazorat guruhlaridagi hayvonlarda sirka kislotasi kiritilganidan keyin 20 daqiqa davomida «burishishlar» soni hisoblandi.

«Asetilxolinli burishish» testi orqali vitseral og'riqni aniqlash mumkin. Og'riq atsetilxolinni 3.2 mg/kg dozada qorin bo'shlig'iga yuborish orqali qo'zg'atildi, bu «burishish» sindromining paydo bo'lishiga olib keladi. Tajriba uchun 20-22 g og'irlikdagi oq sichqonlar ishlatildi. Har bir modda

kamida 6 dona sichqonda sinovdan o'tkazildi. O'rganilayotgan moddalar tajriba guruhi hayvonlariga atsetilxolin kiritilishidan 60 daqiqa oldin og'iz orqali yuborildi. Tajriba va nazorat guruhlaridagi hayvonlarda atsetilxolin kiritilganidan keyin 20 daqiqa davomida «burishishlar» soni hisoblandi.

**Tadqiqot natijalari va ularning muhokamasi:**

«Issiq plastinka» testida 1.0-5.0 mg/kg dozalarda og'riq qoldirish faolligi 50% dan yuqori natijani ko'rsatdi. Bu natijani quyidagi jadvaldan ko'rishimiz mumkin (1-jadval).

**1-jadval.**

**O'rganilayotgan moddalarning termik og'riq testida analgetik faolligi (issiq plastinka testi), M+m, n=6**

№	Guruhlar nomi	Doza mg/kg	Og'riq reaksiyasining yashirin davri		
			Normal holatdagi ko'rsatkich	120 daqiqadan keyin	
			Soniya	Soniya	Boshlang'ich ko'rsatkichga nisbatan faollikni ortishi
1	Nazorat fiz. eritma	0.2 ml	9.6±0.8	14.6±0.0	-
2	Ketoprofen	1.0	9.4±0.7	14.2±0.0	51.0
		5.0	9.1±0.4	16.2±0.0	78.0
		10.0	8.8±0.9	<b>17.2±0.0</b>	<b>95.4</b>
3	1-(2-brom-4,5-metilendioksifenil)-6,7-metilendioksi-1,2,3,4-tetragidroizoxinolin gidrokslorid	0.1	9.2±0.5	12.1±0.0	31.5
		0.5	9.5±0.7	12.7±0.0	33.6
		1.0	9.0±0.4	13.2±0.0	46.6
		5.0	8.8±0.8	<b>13.5±0.0</b>	<b>53.4</b>
		10.0	9.5±0.6	14.1±0.0	48.4
4	1-(3,4-dimetoksifenil)-6,7-metilendioksi-1,2,3,4-tetragidroizoxinolin gidrokslorid	0.1	10.0±0.7	14.9±0.0	49.0
		0.5	9.4±0.4	14.6±0.0	55.3
		1.0	9.2±0.9	15.0±0.0	63.0
		5.0	9.7±0.8	15.1±0.0	55.6
		10.0	8.9±0.6	13.6±0.0	52.8

Izoh: \*P=0.05 nazorat guruhi hayvonlari ko'rsatkichiga nisbatan solishtirilganda

«Sirka kislotali burishish» testida moddalarning 0.5-5.0 mg/kg dozalarda og'riq qoldiruvchi aktivligi 60% dan yuqoriligi aniqlandi. Bu natijalar quyidagi jadvalda o'z aksini topgan (2-jadval).

**2-jadval**

**O'rganilayotgan moddalarning kimyoviy og'riq testida analgetik faolligi (sirka kislotali burishish testi), M+m, n=6**

№	Guruhlar nomi	Doza mg/k g	Burishishlar soni	Nazoratga nisbatan burishishlar sonining kamayishi%
1	Nazorat Sirka kislotasi 2.5% eritma 250.0 mg / kg	0.2	48.4±2.2	-
2	Ketoprofen	1.0	15.2±1.9	68.5
		5.0	<b>13.8±2.2</b>	<b>71.4</b>
		10.0	16.2±1.8	66.5
3	1-(2—brom-4,5-metilendioksifenil)-6,7-metilendioksi-1,2,3,4-tetragidroizoxinolin gidrokslorid	0.1	21.0±2.4	56.6
		0.5	20.6±1.8	57.4
		1.0	17.8±1.6	<b>63.2</b>

4	1-(3,4-dimetoksifenil)-6,7-metilendioksi-1,2,3,4 tetragidroizoxinolin gidrokslorid	5.0	<b>19.5±2.1</b>	59.7
		10.0	23.6±2.4	51.2
		0.1	26.4±1.9	45.4
		0.5	24.2±1.7	50.0
		1.0	23.5±2.0	51.4
		5.0	16.1±1.6	<b>66.7</b>
		10.0	18.3±2.3	62.1

Izoh: \*P=0.05 nazorat guruhi hayvonlari ko'rsatkichiga nisbatan solishtirilganda

«Atsetilxolinli burishish» testida moddalarning 1.0-5.0 mg/kg dozalarda og'riq qoldirish faolligi 50% dan yuqoriligi aniqlandi. Quyidagi jadvalda buni ko'rishimiz mumkin bo'ladi (3-jadval).

**3-jadval**

**O'rganilayotgan moddaning kimyoviy og'riq testida analgetik faolligi (atsetilxolinli burishish testi), M+m, n=6**

№	Guruhlar nomi	Doza mg/kg	Burishishlar soni	Nazoratga nisbatan burishishlar sonining kamayishi%
1	Nazorat (fiz. eritma) Atsetilxolin 3.2 mg / kg	0.2	10.2±1.2	-
2	Ketoprofen	1.0	5.0±1.6	50.9
		5.0	<b>4.3±2.0</b>	<b>57.8</b>
		10.0	5.3±1.5	48.0
3	1-(2—brom-4,5-metilendioksifenil)-6,7-metilendioksi-1,2,3,4-tetragidroizoxinolin gidrokslorid	0.1	6.2±2.4	39.4
		0.5	5.9±2.3	42.1
		1.0	5.4±1.9	<b>47.0</b>
		5.0	6.1±1.2	40.1
		10.0	6.3±1.7	38.2
4	1-(3,4-dimetoksifenil)-6,7-metilendioksi-1,2,3,4-tetragidroizoxinolin gidrokslorid	0.1	7.6±2.2	25.4
		0.5	7.0±2.5	31.3
		1.0	6.4±1.8	37.2
		5.0	5.8±1.5	43.1
		10.0	6.0±2.0	41.1

Izoh: \*P=0.05 nazorat guruhi hayvonlari ko'rsatkichiga nisbatan solishtirilganda

**Xulosa:** Sitizinning N-hosilalarining og'riq qoldiruvchi ta'sirini o'rganish orqali o'simliklardan olingan kam zaharlilik darajasiga ega bo'lgan alkaloidlarning tibbiyotda qo'llanilish samaradorligini oshirishga erishishdan iborat. Xulosa o'rnida shuni aytishimiz mumkinki sitizinning N-benzilli hosilalari hamda 1-fenilizoxinolin hosilalarining og'riq qoldiruvchi faolligi zaharlilik darajasini aniqlovchi Stefanov tasnifiga ko'ra IV guruhga kirishi tajribalarda o'z isbotini topdi. O'rganilayotgan moddalar «Issiq plastinka» testida 1.0-5.0 mg/kg dozalarda og'riq qoldirish faolligi 50% dan yuqori natijani ko'rsatdi. «Sirka kislotali burishish» testida moddalarning 0.5-5.0 mg/kg dozalarda og'riq qoldiruvchi aktivligi 60% dan yuqoriligi aniqlandi. «Atsetilxolinli burishish» testida moddalarning 1.0-5.0 mg/kg dozalarida og'riq qoldirish aktivligi 50% dan yuqoriligi aniqlandi.

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