



EVALUATION AND DETERMINATION OF PSYCHOTROPIC ACTIVITY OF SOME INDOLE ALKALOIDS

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Abstract: Nootropic activity of indole flavonoids, including pyrazolone and pyrazolone chloride, during the action of stimuli causing sleep and fear induced by alcohol was studied using the Sonberg method. In this study, pyrazoline and pyrazoline chloride reduced sleep time by increasing the sleep time induced by alcohol, while in the Sonberg method, the excretion of urine and feces in experimental animals was reduced under the influence of noise and external factors. This suggests that the studied substances have a calming effect.

Key words: nootropic, pyrazoline, Hull method, Motor.

INTRODUCTION

Relevance. In our country, a number of research works are being carried out to study the antitumor activity and synthetic substances. As a direct continuation of these scientific studies, antitumor, as well as general pharmacotoxicological properties of indole alkaloids are studied [1,2]. In the course of research works, such properties of indole alkaloids as vinkanin, pyrazoline iodine methylate and pyrazoline chloride were studied, as well as the features of acute toxicity and acute poisoning of various laboratory animals [3,4], the effect on the cardiovascular system, respiratory organs [5], and also affects the general condition of experimental animals [6]. In this regard, as part of scientific research, these alkaloids on the nervous system are screened for their nociceptive and sedative activity under experimental conditions.

Purpose of the study. Screening of hypnotic and sedative properties of indole flavonoids under experimental conditions.

MATERIALS AND METHODS

All studies were conducted on white rats weighing 18–24 g and white rats weighing 170–250 mg/kg body weight, which were kept under standard quarantine conditions for 18 days. The studied substances iodine pyrazolin methylate and pyrazolin chloride were administered to experimental animals orally in the form of aqueous solutions at doses of 0.2, 2.0 and 20 mg/kg, and distilled water in equal quantities was administered to animals of the control group. Neuropharmacological parameters of the studied substance were studied using the methods of Zon Berg in accordance with the recommendations given in the manuals and literature on motor activity, excitation or anti-anxiety activity [7-10] - the studied substances Sleep-inducing property was introduced. White mice were injected with a 24% ethyl alcohol solution in the

abdominal cavity in a volume corresponding to the body weight of the experimental animals, and the duration of sleep was recorded.

When studying the properties of fear or emotions in response to excitation using the Sonberg method, white rats were placed in separate rooms, recording the repetition of urine and feces caused by fear when exposed to an external calling sound or noise.

Discussion of the results obtained on the basis of the studies was carried out in comparison with the control group, and statistical processing of the results was carried out using the methods listed in the work of R.V. Strelkov [12,13].

RESULTS AND DISCUSSION

In studies in the control group, the effect of ethyl alcohol began after 24.4 ± 1.10 minutes, turned into sleep in 100% of the animals of this group and lasted up to 145.1 ± 10.2 minutes. Sleepiness was observed due to ethyl alcohol in the doses studied within the framework. The effect of iodine pyrazolone matelot began after 29.4 ± 1.14 , 31.7 ± 0.96 and 33.6 ± 1.89 minutes and continued up to 135.3 ± 3.81 , 125.7 ± 6.1 and 129.6 ± 2.14 minutes, respectively. The results obtained on the basis of the conducted studies are presented in Table 1.

Table 1

The effect of pyrazoline on the time of onset and duration of sleep

№	Вещества и группы	Дозы в мг/кг	Время начала сна указывается в минутах.	Продолжительность сна указана в минутах.	Разница по отношению к контролю в %
1.	Контрольная группа	Физиологический раствор	$25,4 \pm 1,15$	$154,2 \pm 12,2$	
2.	Пиразолин	0,3	$27,4 \pm 1,12$	$137,3 \pm 4,8$	13
		1,2	$30,7 \pm 0,84$	$134,8 \pm 6,2$	11,4
		11,2	$32,6 \pm 1,79$	$129,54 \pm 2,44$	14,6

Note: $P \leq 0.05$ compared to the control group.

The studies noted that pyrazoline iodine methylate reduced the time of sleep onset to 2; 4.3 and 6.2 minutes, respectively, compared to the control group, and the duration of sleep to 15.8; 18.4 and 23.6 minutes, respectively. Thus, pyrazoline iodine methylate did not show properties to cause drowsiness, reducing the time and duration of sleep onset. Also, when exposed to the substance pyrazoline chloride, such as pyrazoline iodine methylate, it was noted that sleep caused by ethyl alcohol in the studied doses under the influence of pyrazoline iodine methylate began after 26.4 ± 1.11 , 27.1 ± 0.34 and 29.2 ± 1.56 minutes and lasted up to 139.5 ± 1.85 , 138.4 ± 1.3 and 15.2 ± 2.25 minutes, respectively. The results obtained from the studies are presented in Table 2.

Table 2

The effect of pyrazoline chloride on the time of onset and duration of sleep

№	Вещества и группы	Дозы в мг/кг	Время начала сна указывается в минутах.	Продолжительность сна указана в минутах.	Разница по отношению к контролю в %
1.	Контрольная группа	Солевой раствор	$25,4 \pm 1,13$	$154,2 \pm 10,2$	

2.	Пиразолин хлорид	0,2	24,4±1,13	138,5±1,87	7,8
		1,3	28,1±0,36	139,6±1,2	10
		9,8	30,2±1,89	136,2±2,24	12,2

Note: $P \leq 0.05$ compared to the control group.

properties to cause drowsiness, reduce the time and duration of sleep onset. But it was weaker than that of pyrazoline iodomethylate.

In Sonberg's studies, animals in the control group showed excretion of feces and urine under all external influences, that is, under all 10 of these influences, defecation and excretion of urine were recorded within 85-110 minutes after administration of the test substance, respectively.

Table 3

Effect of pyrazoline iodomethylate and pyrazoline chloride on excretion of feces and urine according to Sonberg's method

№	Вещества и группы	Дозы мг/кг	Частота стула и мочеиспускания в результате каждого внешнего воздействия	
			Повторная дефекация	Повторное выделение мочи
1.	Контрольная группа	Дистиллированная вода	10	10
2.	Пиразолон йод метилированный	0,1	6	8
		1,0	4	6
		10,0	3	3
3.	Пиразолин хлорид	0,1	7	8
		1,0	6	6
		10,0	5	5

Thus, under the influence of pyrazolone iodomethylate and pyrazolone chloride, it was observed that defecation and urine excretion did not increase proportionally to each other from 25-32% to 55-76%, respectively, compared to the control group. Thus, based on the conducted screening study, it can be concluded that the studied substances significantly reduce fear and emotional arousal.

CONCLUSIONS

In this study, pyrazoline iodine methylate and pyrazoline chloride reduced sleep time by increasing sleep time caused by alcohol, in the Sonberg method, urine and feces excretion in experimental animals decreased due to noise and external factors. Thus, based on the conducted screening study, it can be concluded that the studied substances significantly reduce fear and emotional arousal. This indicates that the studied substances have a calming effect.

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