

Biological activity of the mummy. Publication 13: Effect on some biochemical parameters of blood: the content of alkaline phosphatase, residual nitrogen, sugar, lipids, nucleic and ascorbic acids, glycogen and cholesterol

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SUMMARY

The results of numerous experimental studies on the study of the effect of mummy on some biochemical parameters of blood are analyzed: the content of alkaline phosphatase, residual nitrogen, sugar, lipids, nucleic and ascorbic acids, glycogen and cholesterol.

Key words: mummy, mummy extract, residual nitrogen, sugar, lipids, lipid metabolism, nucleic acids, ascorbic acid, glycogen.

The spectrum of biological activity of mummy, described in numerous bibliographic sources, is very wide. Due to the fact that changes in the biochemical parameters of blood occur in various diseases, it seemed to us expedient to conduct an information and analytical study on this topic. This publication is a logical continuation of our previous works [7, 8], devoted to the study of the effect of mummy on some blood parameters.

I. Influence on the content of alkaline phosphatase

By the nature of the transformations and the variety of biologically active compounds that play an important role in all basic life processes, phosphorus is distinguished among other elements. Determination of the activity of one of the types of phosphatases - alkaline phosphatase (ALP) is of clinical importance, since it plays an important role in the formation of bone tissue.

O.I. Andreeva (1965) in acute experiments on dogs under a slight morphineether anesthesia, determined the effect of intravascular administration of mummy extract at a concentration of 10 mg / kg on alkaline phosphatase activity [2]. VI series of studies mummy extract was injected intra-arterial, in II - intravenously. Blood from the femoral vein of animals was taken before and through 5, 30, 60 and 90 minutes after the introduction of the extract of mummy [2]. Before the administration of the drug, the alkaline phosphatase activity varied in two series from 1.64 to 3.08 (on average 2.42) Bodansky units. VI series average the initial value of the alkaline phosphatase activity was 2.11 units. After 5 and 30 minutes. after intra-arterial administration of 10 mg / kg of mummy extract, the alkaline phosphatase activity changed insignificantly. After 60 min. there was a significant increase in alkaline phosphatase activity (on average up to 3.0 units), compared with the initial value, but by the end of the experiment (after 90 minutes) the alkaline phosphatase activity approached the initial values [2].

In Series II, before intravenous administration 10 mg / kg of mummy extract, alkaline phosphatase activity averaged 2.74 units. After 5 and 30 minutes. after intravenous administration of the drug, insignificant changes in the activity of alkaline phosphatase were observed: first, a slight increase, then (after 30 minutes), the activity of alkaline phosphatase decreased in comparison with the initial one; after 60 min. continued to decrease and averaged 2.31 units. By the end of the experiment (after 90 min.), The alkaline phosphatase activity approached the initial values [2].

Thus, during the research it was found that only after 60 minutes. after intravascular administration of the mummy extract, significant changes in ALP activity begin to occur, and after 90 minutes. ALP activity returns to its original values [2]. As a result of the experiment, a relationship was established between the method of administration of the mummy extract and the activity of alkaline phosphatase: intra-arterial administration was accompanied by an increase in enzyme activity, and intravenous administration was accompanied by a decrease [2].

Yu.N. Nuraliev (1973) in experiments on 40 rabbits and 20 rats studied the effect of

mummy for the activity of alkaline phosphatase, glutamine-pyruvic (HPT) and glutamino-oxaloacetic transaminases (GST) [3].

In intact rabbits, the alkaline phosphatase activity, on average, was in the range of $2.06 \pm 0.1 - 2.16 \pm 0.01$ units. (Bodansky) [3]. Daily administration of benzene for 7 days markedly reduced the activity of the ALP enzyme $1.1 \pm 0.1 - 1.2 \pm 0.1$ units, which was at a low level up to 21 days (1.5 ± 0.2 units). Only on days 28–35 did the ALP activity return to its initial level ($1.5 \pm 0.2 - 2.0 \pm 0.3$ units) [3].

Daily administration of mummy for therapeutic purposes most pronouncedly restored the alkaline phosphatase activity on the 7th day 3.5 ± 0.3 , the 14th - 3.5 ± 0.1 , and the 21st - 4.80 ± 0.05 ($P < 0.05-0.01$) relative to $3.10 \pm 0.06 - 2.90 \pm 0.03$ units. in experiments with the use of a metabolic process stimulator pentoxil [3]. Shilajit, introduced prophylactically from the first day of benzene intoxication, prevented a decrease in alkaline phosphatase activity at all times of the study [3].

In experiments on rats, it was also revealed that mummy administered orally at a dose of 150 mg / kg, from the first day of intoxication and at all periods of the study, statistically significantly increased the alkaline phosphatase activity on average from 6.1 ± 0.3 to 8.9 ± 0.2 , relative to 3.2 ± 0.1 initial values and $1.2 \pm 0.1 - 2.7 \pm 0.2$ units. in animals of the control group ($P < 0.05 - 0.001$). The HPT activity in intact rabbits averaged $104 \pm 7 - 118 \pm 13$, and the HPT activity was $45 \pm 4 - 53 \pm 3$ U / ml [3]. In chronic benzene intoxication, the thyroid hormone activity significantly increased: a day after the last dose of benzene - 167 ± 12 , on the 14th day - 215 ± 16 , on the 21st day - 180, on the 28th day - 148 ± 4 units / ml. The HPT activity in animals of the control group during the indicated periods of the study increased on average from 82 ± 5 to 83 ± 7 relative to $45 \pm 4 - 53.7 \pm 3$ units / ml of the initial parameters.

Studies by other authors (R. Bekieva and E.M. Kran (1965), V.N. Ismailova (1965–1966), A. Sh. Shakirov (1965-1968, 1978) and N.M. Madzhidova et al. (1980)), devoted to the effect of mummy on the activity of alkaline phosphatase in bone fractures, are described in sufficient detail in [5]. The authors have shown that Shilajit preparations cause a significant increase in the activity of alkaline phosphatase, the level of calcium and phosphorus in the blood. This is most clearly manifested during the formation of callus, which indicates the stimulation of bone tissue regeneration by mummy preparations [5].

II. Effect on residual nitrogen content

The effect of intravascular administration of mummy on the change in the residual nitrogen of blood serum in experimental animals (30 dogs) was studied by N.A. Shelkovsky, O. I. Andreeva et al. (1965) [nine]. Blood for analysis was taken from the animal's femoral vein before the experiment and after 5-30-60-90 minutes from the start of administration of 40-20-110-5-1% solutions of the mummy extract intra-arterially and 1% solution intravenously. Residual nitrogen was determined by the Assel method [9].

In the course of the study, it was found that in healthy dogs the content of residual nitrogen in blood serum ranged from 16.98 to 34.80%. After the introduction of 1 and 5% solutions of the extract of mummy, 5 minutes after the beginning of the introduction, the amount of residual nitrogen increased by 3.1 and 7.0% in relation to the initial level. Moreover, with the introduction of a 1% solution, the amount of residual nitrogen reached almost the initial value, and the introduction of a 5% solution caused a further increase in the content of residual nitrogen up to 10.5% in relation to the initial data [9].

With intra-arterial administration of 10-20-40% solutions 5 minutes after administration, there was a significant decrease in the residual nitrogen content of blood serum by 18.0-16.0-79.9% compared to the initial values. Subsequently, the amount of residual nitrogen gradually increased and by the end of the experiment increased by 6.2–18.2 and 20.1% in comparison with the initial data [9]. A pronounced decrease in the content of residual nitrogen in the blood in the first minutes after the introduction of high concentrations of mummy extract is associated with a vascular reaction and an increase in the filtration capacity of the kidneys. The increase in the content of residual nitrogen by the end of the experiment may be explained by a decrease in the filtration capacity of the kidneys and the accumulation of products of protein metabolism in the blood [9].

III. Influence on sugar content

Determination of blood sugar allows you to assess the state of carbohydrate metabolism in the body during physiological changes and pathological processes. A.A.Shinkarenko et al. (1969-1972) to study the effect of mummy and its fractions on the content blood sugars were tested in 78 white rats. An experimental group of animals was injected intraperitoneally with mummy extract at a dose of 50 mg / kg and 100 mg / kg once a day for 7 days, mummy humic acids - 10 mg / kg, mummy fulvic acids - 5 mg / kg. On the 8th day, the animals were sacrificed. Studies have shown a decrease in blood sugar under the influence of mummy and its fractions. The most pronounced was the effect of mummy humic acids (17.2% and 11.6%) [12].

According to Yu.N. Nuralieva (1973-1977), a single dose of mummy 50-1000 mg / kg does not cause significant changes in blood sugar. The introduction of mummy to experimental animals (species not specified) at a dose of 25.0, 50.0 and 500 mg / kg once a day for 1 month contributed to a decrease in blood sugar levels to 115 ± 3 - 116 ± 3 mg% (relative to 129 ± 8 mg% in control animals) [3, 4].

ON. Shelkovsky and V.A. Savenko (1965) it was shown that with the introduction of the drug mummy in the amount of 50 mg (I series of experiment), already in On the 1st day in male rabbits of the chinchilla breed there was a slight increase in sugar content up to 95-100 mg% (at the initial level of 89 mg%), reaching the initial value by the 15th day. In II series, which received 100 mg of the drug, during the first 6 days there was a decrease in sugar level by 21% from the initial one. VIII series, which received 200 mg for 30 days, there was a slight decrease in sugar levels only on the 1st and 3rd day. Subsequently, its level was within the initial [10].

In other works of N.A. Shelkovsky et al. (1965) studies were carried out on adult dogs weighing 12 to 25 kg. In five series, the drug was administered in the form of 40-20-10-5 and 1% solution intravenously at the rate of 1 ml of solution per 1 kg of animal weight. The sugar content was determined in dynamics 5-30-60-90 minutes after the introduction of the mummy extract in the blood taken from the femoral vein [11].

The peripheral blood sugar content of healthy dogs ranged from 79 to 170 mg%. Within 5 minutes after intra-arterial administration of the mummy extract, the blood sugar content increased and amounted to 153.6% with the introduction of 40% extract, 120% - 20%, 126.4% - 10%, 104.9% - 5%, 103.5% - 1%. With the intravenous administration of a 1% extract, the blood sugar content increased by 103% in relation to the initial data. The next 30 minutes after the introduction of large doses (40-20-5% solutions of the drug), the sugar content in the peripheral blood continued to increase and amounted to 170-150-112%, respectively, of the initial values. With the introduction of 10 and 1% solutions of the extract, no further increase in the sugar content was observed until the end of the observation.

Thus, intra-arterial administration of mummy extract to adult dogs caused an increase in blood sugar levels in direct proportion to the dose of the administered substance. This is probably due to irritation of the sympathetic receptors. Intravenous administration of a 1% solution of the extract caused a gradual decrease in sugar levels due to an increase in the tone of the parasympathetic part of the nervous system [11].

M.Zh. Allaeva et al. (2008) studied the effect of glycorazmulin (consisting of *Rhodiola* Semyonov and mummy) on the level of glucose in the blood. The experiments were carried out on 24 rats weighing 145-160 g under conditions of experimental hyperglycemia caused by a single intraperitoneal injection of a hypertonic glucose solution at a dose of 4.5 g / kg. Glycorazmulin and its components were administered orally at 50 mg / kg 30 minutes before glucose administration. After 30, 60, 120 minutes. determined the level of glucose in the blood by the enzymatic method [1].

In experiments, it was found that 30 minutes after the administration of glucose, glycorazmulin at a dose of 50 mg / kg reduced blood sugar levels by 24.2%, and after 60 and 120 minutes. - by 38.6% and 19.4% compared with the control data. The main component of glycorazmulin - mummy - reduced blood sugar levels, respectively, by 16.4%, 25.9% and 8.6% compared to controls

data. Under similar conditions, rhodiola (form of application is not specified) reduced blood glucose levels after 30, 60 and 120 minutes, respectively, by 18.9%, 31.0%, 6.0% and 12.1%. Consequently, glycorazmulin has a more pronounced antihyperglycemic effect [1].

IV. Influence on the metabolism of lipids, nucleic acids, ascorbic acid, glycogen and chole sterol

A.A. Shinkarenko et al. (1969-1972), devoted to the study of the influence of mummy and its fractions for glycogen content in the liver, heart and striated muscles; ascorbic acid in the adrenal glands; Nucleic acid sums were performed on 78 white rats. An experimental group of animals was injected intraperitoneally with mummy extract at a dose of 50 mg / kg and 100 mg / kg once a day for 7 days, mummy humic acids - 10 mg / kg, mummy fulvic acids - 5 mg / kg. On the 8th day, the animals were sacrificed [12].

In the course of research it was shown that under the influence of mummy there is a decrease in the content of ascorbic acid in the blood. The most pronounced effect is exerted by humic acids. A decrease in the content of ascorbic acid in the adrenal glands with the introduction of mummy and its fractions, according to the authors, is associated with an increase in the activity of these organs, which indicates an increase in corticosteroids in them [12].

The content of the sum of nucleic acids under the influence of mummy increased by 16.5%, humic acids in mummy - by 20.1%. An increase in the amount of nucleic acids in the blood indicates the stimulation of their synthesis under the influence of mummy and its fractions [12].

The amount of glycogen in the liver under the influence of mummy increased by 76.6%; with the introduction of humic acids - by 37.6%. After the introduction of fulvic acids in mummy, the glycogen content in the liver did not change significantly. The content of glycogen in muscles with the introduction of mummy increased by 24.7% and by 45.2% - with the introduction of humic acids. With the introduction of fulvic acids, the glycogen content in the muscles decreased by 18.4%. The content of glycogen in the heart increased with the introduction of all test substances. The most pronounced was the effect of mummy - by 35.8% [12]. The authors revealed the relationship between the content of sugar in blood and glycogen in the liver, muscles and heart: a decrease in sugar content is accompanied by an increase in glycogen in the liver, muscles and heart [12].

The effect of mummy on the content of certain lipids in the blood and liver was studied by A.A. Shinkarenko et al. (1972) on 22 white rats. Group I was injected with mummy at a dose 100 mg / kg daily for 7 days. Group II was injected with saline [12].

In the course of the studies, it was found that the introduction of an aqueous extract of mummy contributed to an increase in blood cholesterol levels by 24% and a statistically insignificant increase in the concentration of phospholipids and the ratio of cholesterol / phospholipids. Content of total lipids in the liver decreased by 14.3%. A decrease in the content of total lipids in the liver is accompanied by the stimulation of the synthesis of cholesterol and phospholipids in the liver, which, according to the authors, is a beneficial effect of mummy [12].

The foregoing indicates the possibility of using mummy for some inflammatory diseases of the liver and pancreas [12].

According to Yu.N. Nuralieva (1973-1977), single and multiple introduction of mummy into doses of 25-500 mg / kg to experimental animals (species not specified) caused a slight increase in the glycogen content in the liver (from $10 \pm 1\%$ to $15 \pm 22\%$ relative to $9 \pm 12\%$ in the control series), which indicates a positive effect of mummy on functions liver [3].

The effect of mummy on lipid metabolism (the content of total lipids, phospholipids, free fatty acids and triglycerides) in myocardial infarction was studied by K.Yu. Yuldashev and S.K. Saidkarimov (1978), N.S. Bashirova et al. (1978) and presented in the work [6]. The authors have shown a positive effect of mummy on lipid metabolism.

V. Discussion of results

The results of the conducted information and analytical research were summarized by us in table.

1.

From the data table. 1 shows that mummy preparations cause a significant increase in the level of

alkaline phosphatase, calcium and phosphorus in the blood. This is most clearly manifested during the formation of callus, which indicates the stimulation of bone tissue regeneration by mummy preparations. A pronounced decrease in the content of residual nitrogen in the blood in the first minutes after the introduction of high concentrations of mummy extract is possibly associated with a vascular reaction and an increase in the filtration capacity of the kidneys.

Intra-arterial administration of mummy extract is accompanied by an increase in blood sugar levels, which is directly proportional to the dose of the substance administered. This is due to irritation of sympathetic receptors. Intravenous administration of 1% extract causes a gradual decrease in sugar due to an increase in the tone of the parasympathetic nervous system

Under the influence of mummy, the content of ascorbic acid in the blood decreases; the level of cholesterol in the blood rises; the content of the sum of nucleic acids, the concentration of phospholipids and the ratio of cholesterol / phospholipids increase. The content of total lipids in the liver decreases, which can be considered as a beneficial effect of mummy.

Single and multiple administration of mummy in doses of 25–500 mg / kg is accompanied by a slight increase in the glycogen content in the liver, which indicates a positive effect of mummy on liver function.

Table 1

The effect of mumiyo on some biochemical parameters

№ п/п	Автор исследования, библиографическая ссылка	Год	Характеристика объекта исследования				Результаты исследований
			Название препарата и его концентрация	Способ и дозы введения	Опытные животные или объект исследования	Место отбора проб мумиё	
I. Влияние на содержание щелочной фосфатазы							
1.	О.И. Андреева [2]	1965	экстракт мумиё	внутрисосудистое в концентрации 10 мг/кг	собаки	не указано	Установлена взаимосвязь между способом внутрисосудистого введения экстракта мумиё и активностью щелочной фосфатазы: внутриартериальное введение препарата сопровождается повышением активности фермента, а внутривенное – снижением.
2.	Ю.Н. Нуралиев [3, 4]	1973–1977	водный экстракт мумиё	пероральное – 150 мг/кг	кролики (40), крысы (20)	Средняя Азия, Забайкалье	Мумиё, введённое профилактически с первого дня бензолловой интоксикации, во все сроки исследования предотвращает понижение активности ЩФ. Введённое перорально в дозе 150 мг/кг, с первого дня интоксикации и во все сроки исследования, повышает активность ЩФ в среднем от $6,1 \pm 0,3$ до $8,9 \pm 0,2$ относительно $3,2 \pm 0,1$ исходных значений и $1,15 \pm 0,10 - 2,7 \pm 0,2$ ед. у животных контрольной группы ($P < 0,05-0,001$). При хронической интоксикации бензолом мумиё понижает активность ГЩТ и ГПТ.
3.	А.Ш. Шакиров [5]	1965–1968	мумиё	пероральное (дозы см. п. 5)	собаки и кролики	Средняя Азия	Увеличивает содержание щелочной фосфатазы в крови животных.
4.	Н.М. Маджидов с соавт. [5]	1980	мумиё	перорально (дозы см. п. 6)	собаки и кролики	Средняя Азия	Повышает содержание щелочной фосфатазы в крови травмированных животных.
5.	Р. Бекиев [5]	1965	мумиё	через зонд 7 % раствор из расчёта 1 см ³ на 1 кг веса	кролики	не указано	Увеличивает содержание щелочной фосфатазы.
6.	В.Н. Исмаилова [5]	1965	мумиё-асиль	0,01–0,05–0,1–0,2 г/кг	кролики	не указано	Увеличивает содержание щелочной фосфатазы и повышает уровень кальция и фосфора в крови.

II. Влияние на содержание остаточного азота							
7.	Н.А. Шелковский, О.И. Андреева с соавт. [9]	1965	экстракт мумиё	40-20-10-5-1 % р-р внутриа- ртериально и 1% раствор внутри- венно	собаки	не указано	Повышает на 3,1 и 7,0 % (по отношению к исходному уровню) через 5 минут после введения количество остаточного азота при введении 1 и 5 % растворов. Значительно снижает содержание оста- точного азота сыворотки крови на 18,0-16,0-79,9 % (по сравнению с исходными величинами) через 5 минут после введения при внутриа ртериальном введении 10-20-40 % растворов.
III. Влияние на содержание сахара							
8.	А.А. Шинкаренко с соавт. [12]	1969-1972	экстракт мумиё	внутри- брюшинно в дозе 50 мг/кг и 100 мг/кг, гуми- новые кис- лоты мумиё - 10 мг/кг, фульвокис- лоты мумиё - 5 мг/кг	белые крысы		Уменьшает содержание сахара в крови под влиянием мумиё и его фракций. Наиболее выражено влияние гуминовых кислот мумиё (17,2 % и 11,6 %)
9.	Ю.Н. Нуралиев [3, 4]	1973-1977	мумиё	в дозах 25-500 мг/кг		Средняя Азия, За- байкалье	Практически не вызывает изменений со- держания сахара в крови при однократ- ном введении. Введение в дозе 25, 50 и 500 мг/кг один раз в день в течение 1 месяца понижает уровень сахара в крови до $115 \pm 3 - 116 \pm 3$ мг% (относительно 129 ± 8 мг% у контрольных животных).
№ п/п	Автор исследова- ния, библиогра- фическая ссылка	Год	Характеристика объекта исследования			Место от- бора проб мумиё	Результаты исследований
			Название препарата и его концент- рация	Способ и дозы введе- ния	Опытные животные или объект иссле- дования		
10.	Н.А. Шелковский и В.А. Савенко [10]	1965	препарат мумиё	50, 100 и 200 мг	кролики-сам- цы породы шиншилла	не указано	В дозе 50 мг незначительно повышает содержание сахара до 95-100 мг% (при исходном уровне 89 мг%), достигающее ис- ходного значения к 15-му дню. В дозе 100 мг препарата, в течение первых 6 дней наблюдается снижение уровня сахара на 21 % от исходного. В дозе 200 мг незначи- тельно снижает уровень сахара лишь в 1-й и 3-й день.
11.	Н.А. Шелковский с соавт. [11]	1965	экстракт мумиё	Внутривен- ное - в виде 40-20-10-5 и 1%-ного раствора из расчета 1мл раствора на 1 кг веса животного.	взрослые соба- ки весом от 12 до 25 кг	не указано	Внутриа ртериальное введение повышает уровень сахара в крови прямо пропорцио- нальное дозе вводимого вещества, вслед- ствие раздражения симпатических рецеп- торов. Внутривенное введение 1%-ного раствора экстракта снижает содержание сахара, вследствие повышения тонуса па- расимпатического отдела нервной систе- мы
12.	М.Ж. Аллаева с соавт. [1]	2008	глико- размулин (состоящего из родиолы Семенова (препарат не указан) и мумиё)	50 мг/кг	24 крысы мас- сой 145-160 г в условиях эк- сперименталь- ной гипергли- кемии	не указано	Снижает уровень сахара в крови на 24,2 %, через 60 и 120 мин. - соответственно на 38,6 % и 19,4 % (по сравнению с контролем); мумиё, соответственно, на 16,4 %, 25,9 % и 8,6 % по сравнению с контролем.

IV. Влияние на обмен липидов, нуклеиновых кислот, аскорбиновой кислоты, гликогена и холестерина							
13.	А.А. Шинкаренко с соавт. [12]	1969– 1972	экстракт мумиё	внутрибрю- шинное – 50 мг/кг и 100 мг/кг, гуминовые кислоты мумиё – 10 мг/кг, фульво- кислоты мумиё – 5 мг/кг.	белые крысы (78)	не указано	Уменьшает содержание в крови аскорбиновой кислоты. Увеличивает содержание суммы нуклеиновых кислот на 16,5 %. Увеличивает количество гликогена в печени на 76,6 %. Существенно не изменяет содержание гликогена в печени после введения фульвокислот мумиё. Повышает содержание гликогена в мышцах на 24,7 % и на 45,2 % – при введении гуминовых кислот. Снижает содержание гликогена в мышцах на 18,4 % при введении фульвокислот. Содержание гликогена в сердце увеличивается при введении всех испытуемых веществ. Выявлена взаимосвязь между содержанием сахара в крови и гликогена в печени, мышцах и сердце: уменьшение содержания сахара сопровождается увеличением гликогена в печени, мышцах и сердце.
				100 мг/кг ежедневно в течение 7 дней	белые крысы (22)		Способствует повышению уровня холестерина в крови на 24 % и увеличение концентрации фосфолипидов и коэффициента холестерин/фосфолипиды (статистически недостоверно). Снижает на 14,3 % содержание общих липидов в печени.
14.	Ю.Н. Нуралиев [3, 4]	1973 – 1977	мумиё	однократное и многократное введение в дозах 25–500 мг/кг	не указаны	Средняя Азия, Забайкалье	Повышает содержание гликогена в печени (от 10 ± 1 % до 15 ± 22 % относительно 9 ± 12 % в контрольной серии).
15.	К.Ю. Юлдашев и С.К. Саидкари- мов [6]	1978	мумиё-асиль	перорально 200 мг/кг	кролики-самцы породы шиншилла весом 2,5–3 кг	не указано	Повышает уровень общих липидов в зоне некроза; содержание свободных жирных кислот в зоне инфаркта; фосфолипидов в зоне инфаркта и перинекротической зоне.
16.	Н.С. Баширова с соавт. [6]	1978	мумиё	перорально в дозе 200 мг/кг	кролики-самцы весом 2–2,5 кг	не указано	Оказывает положительное влияние на липидный обмен, особенно на ранних сроках инфаркта миокарда.

Vi. Conclusion

On the basis of numerous experimental studies, mummy preparations can be considered promising drugs with, inter alia, regenerative, hepatoprotective, anti-inflammatory and carbohydrate metabolism normalizing activity.

However, in order to introduce mummy preparations into clinical practice, it is necessary to conduct experimental and clinical studies on standardized samples of dry mummy extract for all of the listed indications. In this case, special attention should be paid to the scientifically grounded selection of doses of dry mummy extract in each case.

Literature

1. Allaeva M.Zh., Fayzieva Z.T., Aliev Kh.U. Influence of mummy and glycorazmulin on indicators blood // Practical phytotherapy. - 2008. - No. 4. - P. 12-15.
2. Andreeva O.I. Changes in the activity of alkaline phosphatase during intravascular administration extract of mummy // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - S. 7-10.
3. Nuraliev Yu.N. Pharmacology of Shilajit: Author's abstract. dis. ... Dr. med. sciences. - Yaroslavl, 1973. - 34 p.
4. Nuraliev Yu.N. Shilajit and its medicinal properties. 2nd ed. - Dushanbe: Irfon, 1977. - 112 p.
5. Frolova L.N., Kiseleva T.L. Biological activity of the mummy. Post 4:

Regenerative action in bone fractures // Traditional medicine. - 2008. - No. 2 (3). - S. 51-60.

6. Frolova L.N., Kiseleva T.L. Biological activity of the mummy. Publication 7. Impact on course and outcome of acute myocardial infarction // Traditional medicine. - 2009. - No. 1 (16). - S. 51-62.

7. Frolova L.N., Kiseleva T.L. Biological activity of the mummy. Publication 10. Impact on growth of tumor cells and some blood parameters // Traditional medicine. - 2009. - No. 4 (19). - S. 34.

8. Frolova L.N., Kiseleva T.L. Biological activity of the mummy. Publication 11. Impact on blood clotting and platelet count // Traditional medicine. - 2010. - No. 1 (20). - S. 34-38.

9. Shelkovsky N.A., Andreeva O.I., Shelkovskaya N.K. Influence of intravascular administration mummy on the change in total protein and residual nitrogen of blood serum // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - pp. 100-101.

10. Shelkovsky N.A., Savenko V.A. To the question of dosage of mummy in experiments on rabbits // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - pp. 103-112.

11. Shelkovsky N.A., Shelkovskaya N.K., Andreeva O.I. Sugar content in the peripheral blood with intravascular injection of mummy // I Inter-republican symposium on the experimental study of mummy: Mater. symposium. - Dushanbe, 1965. - S. 139-141.

12. Shinkarenko A.L., Karpova V.V., Gerashchenko G.I., Lisevitskaya L.I. Study of chemical composition and biological properties of the Caucasian mummy // Mumiyo and its therapeutic application: Abstracts. report 18 Feb 1972 - Pyatigorsk, 1972. - S. 7-9.

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Frolova, L.N. Biological activity of the mummy. Publication 13: Influence on some biochemical parameters of blood: the content of alkaline phosphatase, residual nitrogen, sugar, lipids, nucleic and ascorbic acids, glycogen and cholesterol / L.N. Frolova, T.L. Kiseleva // Traditional medicine. - 2010. - No. 3 (22). - S.47-53.

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