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STUDY OF THE COMPONENTS OF HONEY BEE VENOM AND ITS EFFECT ON THE TREATMENT OF SOME MEDICAL CONDITIONS

Abd-Kreem H. Romi[1] and Mohiu Mazhir Alwan Al-Sharify[2]

[1]AL-Musiab Technical College, AL-Furat AL-Awsat Technical University, Iraq.
[2]Society for Complementary Medicine, Acupressure and Bee venom, Iraq.

Abstract

A study was conducted to know the effect of bee venom on the treatment of six pathological conditions (rheumatism, joint pain, neuritis, psoriasis, thyroiditis, viral hepatitis (C), prostatitis and in the first two methods using the bee directly and the second using a syringe to inject the poison. The following results showed: The second method for treating the studied diseases excelled on the number of sessions, the treatment period and the average of Healing, giving the following averages: 17.83 sessions, 16.18 days, 95.16%), while the first method gave the following averages: 38.37 sessions, 40.83 days, 82.66%). As for the effects of bee venom concentrations on treating studied diseases, four concentrations (10, 30, 50, 70 %) were used, in which the concentration 70% excelled by giving the highest Healing averages of 86.90%, while the concentration 10% gave the lowest Healing averages of 2.3%. Psoriasis patients achieved the highest success average for all concentrations, at 46.50%, while viral hepatitis patients had the lowest Healing average of 40.25%.

Key words: honey bee, venom, medical conditions

Introduction

Bee venom is a transparent liquid that dries quickly when exposed to room temperature and turns grey-white or darker than that, depending on the season. It is excreted through the poison taker present in the seventh ventral ring of honey bee workers. It has an aromatic scent with a pungent resemblance to the banana scent. As for its bitter taste, it is pungent and changes the color of the blue sunflower leaf to red. It loses its vital activity when oxidized by potassium permanganate and remains retained when exposed to heating for 10 minutes at a temperature of 100°C and has not lost its properties by cooling and freezing. It can preserve its biological properties when keeping it in a dry place away from moisture. Bee venom has significant health benefits in improving immunity and is a cure for AIDS and prevents the transmission of viruses from one cell to another and lowers the level of interleukin and this reduces the collagenase that causes cartilage erosion in rheumatoid patients and resists the virus C and has a great ability to prevent and spread the virus in the liver and eliminate it while preserving the cells Hepatic (Omar, 1994b) and (Molam, 1992), Generally speaking, it is anti-virus and bacterial, improves liver function, raises its efficacy, reduces its damage. Honey should be taken with some of the bee venoms. Leslie Goodman (2009) stressed that bee venom supports the role of sperm and fertilizes the egg and is useful in treating male infertility, resulting from weakness or Sperm deficiency and helps stimulate and complete the pollination process, It is a stimulant of the nervous system, so it is an aid to recovery from Parkinson's disease and depression. It is considered a disincentive to the nervous nodes, relieves epilepsy, helps reduce Alzheimer's and regulates the body's electrification and nerve signals. (Al-Khalisi, 2014), It is considered a pain inhibitor and a real treatment for arthritis and osteoporosis, so it is considered effective in treating rheumatic and allergic diseases, as it raises all the defence forces of the devices and increases the pituitary and adrenal glands. Omar (2011), It works as an anti-inflammatory and reduces the activity of cancer cells, especially in the blood and prostate, and strengthens the immunity and reduces inflammation because it contains many antibiotics, including Melitin and Adolapin and treats angina and purifies the blood from toxins secreted by the body and increases the speed of wound healing and has a prominent role in the restoration of endocrine glands and reduces pressure High blood, So it is beneficial for patients with high pressure by reducing blood viscosity

and thus is a treatment for heart patients where it increases the permeability of the blood vessels and has a direct relationship to the peripheral cells in the body such as the pancreas cells responsible for insulin secretion and thus treats diabetes (Bogdanov, 2007; Abu Ayyan and Al-Muzain, 2009).

Materials and methods

Collection of bee venom

The bee venom is collected by means of plastic plates (50×25) cm and fixed at the front of the cells and equipped with wires and the distance between two wires 2-3 mm (shorter than the length of the worker's abdomen). When the bee stands, its belly is located on two parallel wires delivering the electrical impulse to the Worker bee that comes from the pulse generator upon contact. It installs a 3 mm thick piece of glass at the bottom of the wires to collect the poison that the bee produces when it bites the wires, considering them enemies. The venom is collected on the glass piece 6-12 hours after its secretion to freeze properly and keep it in an opaque bottle, tightly closed and at room temperature. When the venom is exposed to sunlight, it becomes dark and when exposed to moisture it becomes brown (Omar and Al-Ghamdi, 2009). Bee venom has been analyzed in scientific laboratories in Baghdad and in laboratories of the Ministry of Science and Technology Baghdad and is almost identical to what researchers analyzed (Snodgrasi ,1956), It has been found that the chemical composition of bee venom is quite complex, where it contains many biologically active compounds, as was shown in table 1.

Table 1: Chemical analysis of complete dry bee venom.

Percentage	Component	Component type
1.5-3	Hyaluronidase enzyme	Protein
9-12	Phospholipase - a	
49 -51	Millions	
1-2	Cycapine	Peptides
1.5 – 2.1	MCD polypeptide	
0.2	Tertiapin	
1.1 – 3	Apamin	
1 – 2	Procamine	
12 – 15	Small peptides	
0.6-2.1	Histamine	Miniatively
0.2 – 1	Dopamine	physiologically
1.2 – 5	Noradrialin	active
2 -2.1	Glucose and fructose	Sugars
5 – 5.2		Phospholipids
1-1.2		Amino acids
4.1-8.2	14 volatile gases	Volatile compounds

The largest component is protein. It consists of: enzymes found in the name of bees, which are responsible for causing pain and toxicity. It has been reported (Hidar, 1988) that the main enzymes in bee venom are phospholipase A2 - hyaluronidase.

1- Phospholipase enzyme (A2)

It is considered one of the most important enzymes in bee venom, where it constitutes about 12% of the dry matter. This enzyme works to separate the essential fatty acids from cefadine and lecithin, which are both a group of phospholipids and therefore work to analyze phospholipids, which are the main component of cell membranes, where ultimately causing cell death and the effectiveness of this enzyme increases with the presence of the mutilin, (Dotimas, 1987) stated that under the influence of the enzyme a sharp drop in blood pressure occurs, a decrease in the number of heartbeats and respiratory arrest, and death may occur at the end and it is due to the presence of allergies from stinging in many people, A large group of enzymes were recorded in bee venom, including: Lecithinase, Esterase, alkaline phosphatase, and phosphatase acid. (Molan, 1992).

Hyalurenidase enzyme

It is an enzyme of the ester group that makes up 1-3% of the dry matter of the venom. This enzyme analyzes hyaluronic acid into simpler units instead of the long chains of acid, especially in the connective tissues of the body and the fluid between the joints. This enzyme acts as an aid to the rapid spread of the venom Cells.

Proteins and peptides:

(Dunford, 2000) identified the main proteins and peptides present in bee venom as follow

1- Meitin 2- Mastine degranulating

This group includes neurotoxins as well as harmful factors for rheumatic infections.

A- Melitin

It is a polypeptide containing 26 amino acids that have a high activity surface and is considered the main ingredient of bee venom, where it constitutes 50% of the dry matter of the venom. It is difficult to estimate those who are ill in the first days of working life.

It is considered the main venom of the toxin and it is highly stable, as it can bear boiling and willing without cracking, and it is due to some pharmacological effects of the venom.

Such as: the inhibitory effect of some enzymatic activities associated with the cell membrane, such as the acetylcholine esterase enzyme and it affects lowering

blood pressure by indirectly affecting the voluntary muscles that secrete potassium ions, which in turn affects its focus on the relaxation and contraction of blood vessels while increasing their permeability, which leads to a decrease in pressure The blood works to stimulate the axis between the pituitary and supra-renal glands, which leads to the secretion of cortisone and capitol amine. This explains the role of bee venom in treating rheumatoid arthritis.

B-Apamin

It is a number of polypeptides consisting of 18 amino acids and it constitutes about 3% of the dry matter of bee venom. It is a very basic pH 12. This component has a low effect on the nervous system and closes the potassium passage channel in the cell membrane, and thus the membrane potential changes, leading to the presence of the Apamin to activate the adrenaline action. Dotimas and Hider (1987) opens this compound and causes paralysis and respiratory failure.

C- Histamin

It is one of the most important components of bee venom and its ratio (0.5-1.5) in relation to dry matter. Its percentage varies according to the bee strain and the worker age. It was also found that the level of histamine increases with increasing the bee age until it reaches its highest average in adult bee.

(Al-Ansari, 2003) explained that the Egyptian bee venom strain contains up to 2% of histamine, due to which the strong physiological effect is capable of causing pain in the mammals and it plays a role in the expansion of blood vessels and increasing their permeability. At the same time, it urges the release of adrenaline, which Excitement occurs in mammals.

D- Peptide that causes dissolution of Mast cell

This peptide is composed of an amino acid that is similar in structure to the abaminine and is about 2% of the toxin, which is dry and its effect on a type of cell called Mast cells confined to blood and blood-saturated tissues, which are cells that contain a large number of membranous vesicles containing histamine, so this peptide makes excitation for these The cells inhibit them, which leads to the conversion of calcium to these cells, which serves to dissolve the cell membrane and release histamine.

E- Cycapine

It contains five amino acids and one double sulfur bond and has a low toxic effect towards the mammals and is found in the toxin with a concentration of 0.52%.

Tartabin

It contains 21 amino acids and two bonds of double sulfur bonds. It is found in a low concentration in the 0.1% toxin. The toxin also contains a group of acids, the most important of which are edicloric acid and the athosphosphoric in addition to a large group of copper, calcium, sulfur and phosphorous salts.

Alarm phermones glands:

There is a pair of glands in the worker bee near the base of the needle called the Cosenkot glands that secrete a group of substances to give a warning message to the bees in order to prepare for defense.

Therefore, the worker continues and pursues the enemy, and it is found that the quantity separated is proportional to the age of the worker and the largest possible quantity is excreted when the worker-age is 2-3 weeks, and the quantity is less when the worker age decreases or increases. The most important pilots, which are more than 20 pilots, isopentyl asines and 2-nonanol.

Results and Discussion

Patients were treated with diseases: rheumatism, joint pain, neuritis, psoriasis, goiter, viral hepatitis, prostatitis and impotence. Patients with studied diseases were treated with toxin and in two methods:

1- Treatment with bees direct acupuncture

Where the worker (bee) was used as a syringe after holding it with forceps from his wings or with two hands to avoid taking out its poison before it was placed in the appropriate and intended place of the patient's body and it is not possible to sting on the bitten place except after leaving an interval of 3-4 days and this method is in two phases as was set by (Yoirish ,1977).

The first stage: the patient was given one sting on the first day and two stings on the second day and three on the third day, and so the patient was given ten stings on the tenth day) so the number of stings the patient takes during this stage (10 days) is 55 stings, The second

Table 2: The average of Healing from the diseases studied using different concentrations of bee venom.

MeanM	70%	50%	30%	10%	Diseases
42.25	84	60	25	-	Rheumatism
36.25	85	45	15	-	Inflammation of the nerves
46.50	88	59	35	4	Psoriasis
41.0	90	41	26	7	Goiter
40.25	82	47	32	-	Viral hepatitis
45.75	92	61	27	3	Prostatitis
	86.90	52.16	22.23	2.3	Mean

stage: its duration is six weeks (42 days) in the first three weeks. The patient took 3 stings per day = 63 stings. As for the other three weeks, the patient is taken 4 stings per day = 84 stings, thus the number of stings the patient takes = 55 + 63 + 84 = 202 His sting Before that, the patient's body sensitivity to bee venom was tested with 1-2 times for his stinging. If no red spots appear on the patient's body, the stings continue and the stings and sessions should continue and the needle of the bee, through which the venom is injected, is raised after 5 minutes, in order for the venom to be fully injected, then the syringe is washed with warm water and soap instead of alcohol.

Injections with bee venom after dilution:

The bee venom is injected after it is diluted in the ratio (10%, 30%, 50%, 70%) between the outer and dermal skin, where the bee venom is distributed in the blood and reaches the whole body, where the therapeutic effect of subcutaneous injection is more beneficial than the parasite injection. When this method is followed, the stinging system is applied in the energy paths points in the body, estimated at 14 energy circulation systems, on which a set of points called 600 points of migration are located, and when affecting them, they affect a specific organ or organs of the patient's body to allow With the flow of energy naturally, the path organ this is activated by opening the energy channels, and thus the disease is treated, the principle of Chinese needles.

As for this method, it was distinguished by the following: it stimulates blood circulation and the immune and nervous system and stimulates the secretion of Cortisone by the supra-renal glands and stimulates the brain to secrete endorphins to relieve pain, The experiment compared between the two methods to treat the six studied diseases and gave the following results: The second method in treating excelled in all studied diseases in terms of the number of sessions, treatment period and the achieved recovery rate (95.16%, 18.5 days, 17.83 sessions), while the first method gave the following averages (82.66%, 40.83 days, 38.33 sessions) respectively, This means that the second method excelled on the first by (18%, 55% and 63%), respectively. Through this, the significant differences between the results of the two methods are clear in the average of recovery, duration of treatment and number of sessions.

Table 3: The effect of the two methods on patients with the number of sessions, the treatment period and the rates of Healing from diseases.

Healing%	Treatment Periods	Number of Sessions	Methods	Diseases
85	43	40	First	Rheumatism
94	17	18	Second	
83	45	44	First	Inflammation of the nerves
93	18	19	Second	
82	36	33	First	Psoriasis
87	16	15	Second	
78	40	37	First	Goiter
100	20	28	Second	
88	41	40	First	Viral hepatitis
98	22	20	Second	
80	40	36	First	Prostatitis
99	18	17	Second	
Methods 1 =82.66 Methods 2	Methods 1 =40.83 Methods 2	Methods 1 =38.33 Methods 2		Average

Table 3 that the highest average of recovery was for patients with psoriasis, where it gave a general average for a different average of 46.50%, followed by prostatitis and impotence, an average of 45.75%.

While the poison solution with a concentration of 70% gave the highest cure average of 86.90%, while the treatment gave 10%, the lowest recovery average was 2.3%.As for the interaction between diseases and healing rates, it was for the treatment (prostatitis * 70%). It gave the highest healing averages of 92%, while the treatments gave (prostatitis * 10%), (neuritis * 10%) and (viral hepatitis * 10%). The lowest averages are zero for every treatments.

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