

Leishmania (L) Major [MRHO/IR/75/ER] in the *Balb/c* Mice and Treatment with Natural Sweetner as a Home Remedy

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Abstract: Natural Sweetner (Honey) has been one of the most complete and delicious human's meals and has been taken to special consideration in Islam as old as humidity, about on honey forum and institute of Islam is very special, in holey Quran: "and your lord revealed to the bee saying; make hives in the mountains and in the trees and in what they build, then eat of all of fruits and walk in the ways of your lord submissively there comes forth from within it a beverage of many colors, in which there is healing for men, most surely there is a sign in this for a people who reflect." (2) Honey has been used traditionally in medicine throughout history, for healing wounds that are old or residence to antibiotics, kinds of burns because honey has low humidity, high osmotic pressure and PH, It cause to static on growth of infectious agents and a sterile layer on sores, former survey showed honey is contain of 20 of sugars, 8 types of vitamins, 11 types of mineral substances, 16 types of amino acids, a large of Enzymes and so on.... in this study were survived properties honey on forum Islam and effectives of Honey on cutaneous Leishmaniasis in BALB/c mouse. Sufficient natural Honey (from Golpayegan) and ointment Paramo-U (made in Iran) were obtained, 30 BALB/c mice were infected with the parasite; *Leishmania (L) major* [MRHO/IR/75/ER] (Parasitology Dep on Faculty Medicine in Tarbiat Modares University). they were divided into three groups, Honey group, Negative and Positive groups and as soon as the Leishmania lesion appeared, weight of the mice and size of the lesion were measured by using Scale and Coliss (Mettler, Switzerland) weekly until the death of the last mouse in the Negative control group. the data was analyzed using the SPSS software. The mean of the weight of the mice that were received Honey did not show significant difference comparing with the mean of the mice in Negative and Positive controls groups ($p > 0.05$). But the mean of the measurement of the mice that were received Honey showed significant difference comparing with the mean measurement of the mice in Negative and Positive controls groups ($p = 0.000$). When the BALB/c mice infected with Rural Cutaneous Leishmaniasis; *(L) major* [MRHO/IR/75/ER], and it is not doing treated so it develop into Visceral Leishmaniasis when the weight decreases and lesion size of the Cutaneous Leishmaniasis widen's the animal will die. In this survey suggested when using Honey, the mean of the measurement of the mice that were received Honey showed significant difference comparing with the mean of the measurement of the mice in Negative control group, but the mean of the weight did not show.

Key words: Treatment • cutaneous leishmaniasis • natural sweetner (Honey) • BALB/c mice

INTRODUCTION

Natural Sweetner (Honey) is called Angabin in Persian. Apart from being one of the most delicious human meals since past, honey has also been taken to special consideration in Islam. Bee is one of those creatures which is revealed in Quran: "and your lord revealed to bee saying: make hives in the mountains and

in the trees and in what people build, then eat all of the fruits and walk in the ways of your lord submissively. There comes forth within it a beverage of many colors, in which there is healing for men, most surely there is a sign in it for those who think". It is also referred to as the food of those in heaven [1, 2]. Prophet Mohammad states: There is no important disease for one who drinks honey three times in a month. There is blessing

in honey and it contains very kind of healing, nothing has a better medicinal aspect than drinking honey. Honest to the life-giving, the angels pray for God's forgiveness for the house with honey in it [3]. If one drinks honey, thousands of drugs go into his body and million diseases get out of it, in case he dies, with honey in his stomach, fire does not touch him [4]. Honey is a good drink and removes fever. Imam Ali states: Honey is one of the most delicious meals and also Imam Reza states: If honey is taken from nectar, that will be the heal for infected sores in tropical areas and is effective for the bacterial resistant sores. Honey that is taken from various nectars has a variety of anti-bacterial activities, it is also used for evaluating the anti-bacterial antibiotics level [6]. Studies have shown that honey is effective for bacterial sore which are resistant to different kinds of antibiotics and years prior to discovering microbes and infections, its miraculous effects in healing burns, sores and wounds were recognized. Honey causes the cease of the growth of infectious agents due to low humidity, high osmotic pressure and PH, it also brings about a sterile layers on sores [7-9]. Studies show that honey contains 20 types of sugar, 8 types of vitamins, 11 types of minerals substances, 16 types of amino acids, some enzymes and so many other unknown substances. It contains mineral substances such as: potassium, iron, phosphorus, iodine, magnesium, lead, manganese, aluminum, copper, sulfide, chromium, lithium, nickel, zinc, osmium, titanium, sodium and it has organic substances such as manits, gum, pollen, lactic acid, formic acid, malice acid, tartaric acid, oxalic acid, citric acid, colors, aromatic oils, nitrogen azotic substance, fermented substances: invertase, amilase, catalase (peroxidase, lipase). Other honey make ups are: glucose, sacarose, gum, dextrin, albominoid, substances, sulfates, anvertin, formic acid and water. Honey contains six-fold vitamins A-B-C-D-K-E and some believe that vitamin pp exists in it [10-12]. Although the first choice of healing cutaneous leishmaniasis and other kinds of leishmaniasis is the anti-moan with valency of ifve, other various drugs are used along with the treatment, such as paramomycin-urea combination which s used as an ointment with 15% viscosity of paramomycin 1% urea and with paraffin in the base, which will be useful if it's used ins the beginning of the sore of the cutaneous leishmaniasis.

Iraji and Sadeghian [14] have examined the effect of paramo-u ointment on the sore of the cutaneous leishmaniasis by the random method, the results showed that those who were treated immediately after the appearance of the sore, had a relative recovery and 17%

of them recovered completely [14]. Armijuz *et al.* (2004) in a controlled random study compared the effect of paramo-u ointment with anti-moan and showed that in similar conditions, although recovery with paramo-u ointment will take longer time than anti-moan compositions, healing cutaneous leishmaniasis in endemic regions and where anti-moan isn't available, is a good choice for treatment [15]. A research was done by Mohaghegh (1384) about honey. In which regarding the scare scientific examinations on pharmacologic effects of honey on injuries, pimples and slow-healing sores and especially cutaneous leishmaniasis, honey was taken into consideration and considering the fact that Rural cutaneous leishmaniasis in BALB/C was first cutaneous and then gradually changed to visceral brings about the death of the animal, it's efficiency was first accomplished in the medical university of Shahid Sadoghi.

MATERIALS AND METHODS

This research was an experimental one by *in vivo* method and was carried out through 3 steps:

- Sufficent natural honey (natural honey from Golpayegan) was obtained in 5-gram cans and was kept in refrigerator. Also the paramo-u ointment or Aminosidin (made in Iran) was gained, simultaneously 30 BALB/C mice (Razi vaccine and serum institute) were gained in 8 weeks and were categorized in the following 3 groups. Also in similar studies, the number of mice in each group was 8-10, since the mice were all of the same breeding, type and age [13]: The negative control group without taking any drug, the positive control group by getting paramo-u ointment and the test group (receiving honey).
- Leishmaniasis parasite the cause of Rural cutaneous leishmaniasis (prepared by Parasitology Department of faculty Medicine in Tarbiat Modares university) was put in culture environment NNN and was transferred to the enriched RPMI1640 to reach mass production, was passage for four times, and in the fourth passage condensed the "stagnant" lipomonads to 1×10^7 , and meanwhile all the 30 mice were infected by infecting 0.1 mm of these lipomonads in a under cutaneous form and form the base of the tail.
- After the appearance of the mouse's tail, honey and paramo-u ointment were used for the related groups every other day and the weight of the mice and the



1-From Case Group

2-From Positive Control Group

3-From Negative Control Group

Fig. 1:

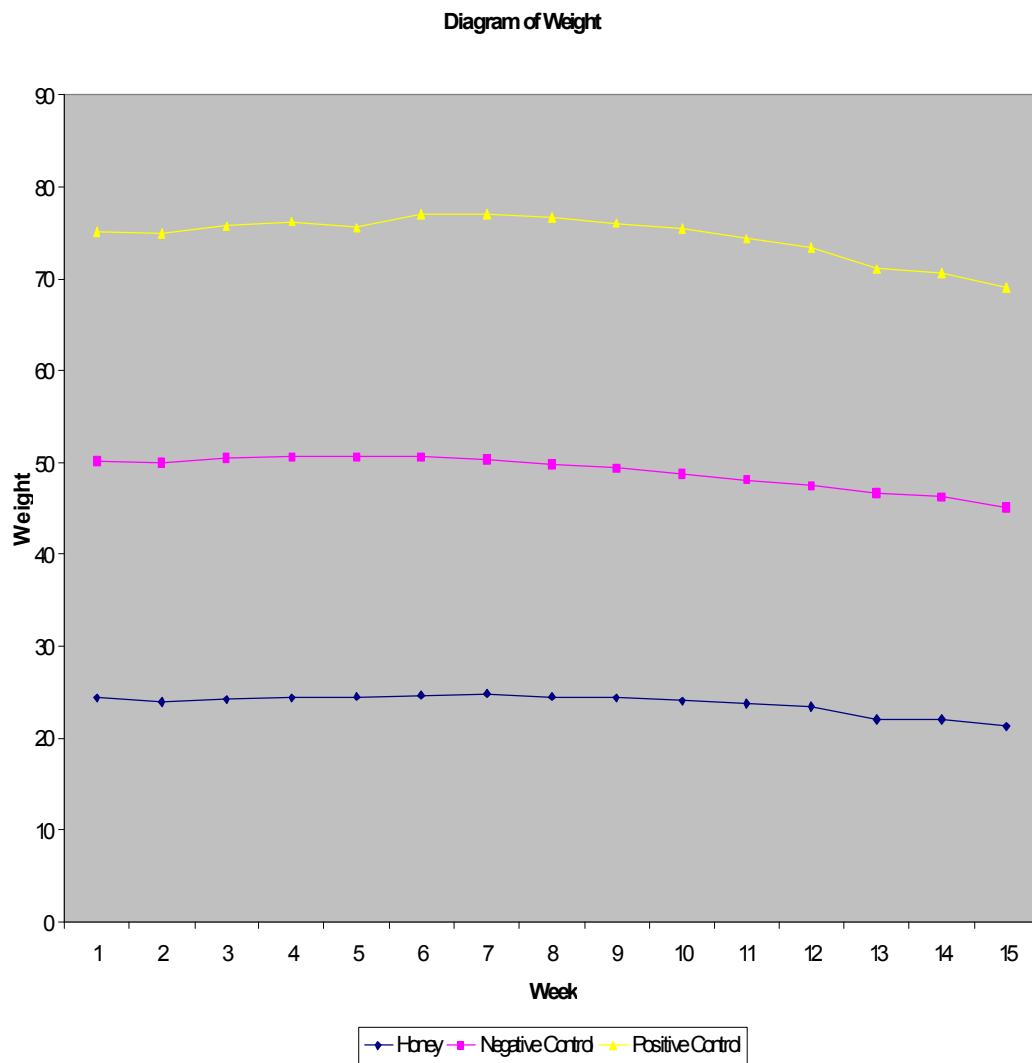


Fig. 2:

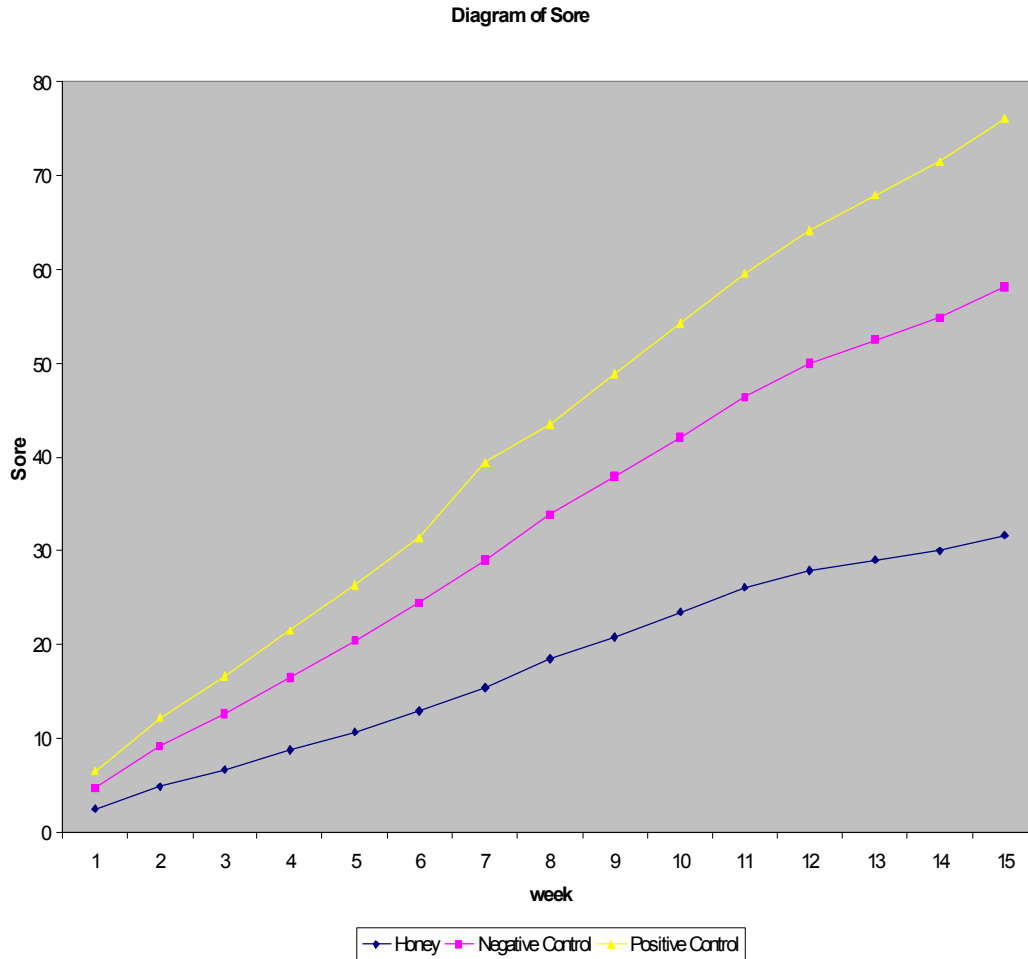


Fig. 3:

size of the sore was measured by using Scale and Coliss in all 3 groups weekly, until the end of the 15th week and the death of the last mouse in the negative control group. Then data was registered and analyzed by using the SPSS software and multi-fold comparative tests. This survey is an experimental study during the years 1383-84 and was carried out in the Medical university of Shahid Sadoghi.

RESULTS

Studies have shown that the base of treating cutaneous leishamniasis is to strengthen the immune system and when the BALB/C is affected by the Rural cutaneous leishamniasis, it undergoes a gradual decrease in weight and a ventricular increase in the sore's diameter

and in case it isn't treated, it will changes into a visceral type and results in its death. In this research all the mice died at last, till the 15th week, the mice in the Negative control group and gradually the mice that received honey and paramo-u all died. Statistically, the mean of the weight of the mice that received honey didn't show a significant difference comparing with the mean of the mice who received paramo-u and those in Negative control ($p > 0.05$). diagram [1]. But the mean of the sore's diameter of the mice that received honey shows a significant different comparing with the mean of the mice who received paramo-u and the Negative control group ($p = 0.000$). diagram [2]. Figure 1-3 show the diameter of the sore in the 15th week in all groups. (The diameter of the sore means the red, raised and swollen spot, in the center of which there is the cutaneous

leishamniasis and it reaches the border of the safe skin from both sides).

DISCUSSION

Using honey on the cutaneous leishamniasis sore in BALB/C doesn't conduce to cease the gradual loss of weight in the affected mouse, although the loss of weight in affected mice who received honey is slower than the negative control group, it's not meaningful. But using honey for affected mice by cutaneous leishamniasis comparing with the mice in Negative control group, caused the decrease of the size of the sore's diameter to a noticeable degree, which means that in BALB/C affected by the cutaneous leishamniasis that is the normal loss of weight when their mean weight was compared to the mice who received honey, there was no significant different although the process of losing weight in mice who received honey was much more slower, the process of increasing the sore's diameter in mice who received honey show a significant difference comparing with the mice in Negative control group (Fig.1-3). Mahmood *et al.* [17] examined the protective and anti-wound effect of honey on the mouse's stomach and showed that a mouse with an ulcer which received treatment shows loss injury comparing with the mouse in the Negative control group [14]. Zina *et al.* (1997) examined the activities against honey and sugar leishamniasis in a culture environment and showed that both have anti-leishamniasis effects but that's stronger in honey [15]. Kameron *et al.* showed the use of honey and herbal sugar in the lotzomia population in Brazil, they observed that the more there is herbal sugar, the more abundant is sand fly [16]. All in all, using honey in cutaneous leishamniasis doesn't have much effect on losing weight, but it causes the cease of the increase in the sore's diameter and keep the cutaneous leishamniasis's sore dry and clean. It didn't affect the infected mice with necrosis and secondary bacterial infection.

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