

Antihistamine Effect of Bee Honey in Wistar Rats

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Abstract - According to the Ayurveda classic *Ashtanga Hridaya*, written around 500 AD, honey can be used to treat many diseases. Eight types of honey are mentioned in Ayurvedic authentic texts. Out of these eight types of honey, the variety produced by honey bees is the most commonly referred to and is the type of honey consumed by humans. Honey produced by other bees and insects has distinctly different properties. Anti-inflammatory, anti-pyretic and anti-nociceptive effects of bee honey were established in Wistar rats in our recent experimental studies. In the present study, our aim was to evaluate the antihistamine potential of bee honey in Wistar rats, in order to elucidate one mechanism of anti-inflammatory action. The antihistamine effect of bee honey was compared with distilled water and chlorpheniramine controls in 3 groups of Wistar rats (n=6 in each). One hour after drug and bee honey administration, these rats were subcutaneously injected with 50 µl of 200 µg/ml of histamine dihydrochloride into the skin where the fur had been shaved, and 2 minutes later the area of the wheal formed was measured and percentage reductions in wheal area were calculated. The results of the study showed the bee honey induced an inhibition of wheal formation in the test group (31.0%) which was not statistically significant ($p > 0.05$). The chlorpheniramine treated group showed 40.0% reduction in wheal formation when compared to the negative control group and it was statistically significant ($p < 0.05$). This study reveals that antihistamine effect is not a mechanism of anti-inflammatory activity of bee honey.

Keywords: Antihistamine, wheal formation, Wistar rats

I INTRODUCTION

The usage of honey as a medicine is referred in many ancient written records [1, 2]. Honey was prescribed by the physicians of many cultures for a wide variety of ailments [3]. It is mentioned in Rigveda [4] and is extensively used in Ayurveda [1,2] specially as a carrier of drugs.

Eight types of honeys are mentioned in Ayurveda [5]. They are *Makshika* (Bees honey), *Bramara* (honey produced by Bumble), *Agra* (honey produced by Wasp), *Pouthika* (honey produced by tiny insect call Kannei), *Ouddhalaka* (honey collected in anthill), *Kshaudra* (honey produced by species of tiny bees), *Dala* (honey collected in flower petals) and *Chatra* (honey collected by a certain kind of bees whose hive looks like an umbrella).

Out of these eight honeys, the variety produced by honey bees is the most commonly referred type of honey. Bees honey is recommended as an Anupana (vehicle) in paediatrics age groups in Ayurveda [6,7].

According to the Ayurvedic authentic texts, bee honey is widely used in the treatment of ophthalmic disorders, jaundice, piles, tuberculosis, asthmatic conditions and, respiratory disorders. Old bees honey helps to reduce over weight.

Anti-inflammatory effect, anti-pyretic, and antihistamine effect of bee honey were established in Wistar rats in our recent experimental studies.

Literature survey revealed that bee honey is extremely useful as a carrier in Ayurvedic medicine but no scientific evidence is available for its antihistamine potential. Thus, in the present study antihistamine activity of bee honey was evaluated.

II MATERIALS AND METHODS

A. Bee honey;

Fresh bee honey was collected from Millaniya division in Kalutara district.

B. Animals

Healthy adult male Wistar rats (200–250 g) were used in the study. The animals were kept in plastic cages (two per cage) under standardized animal house conditions (temperature, 28–31°C; photoperiod, approximately 12 h natural light “per day”; relative humidity, 50–55%) with continuous access to pelleted feed and tap water.

All experiments in rats were carried out in accordance with the recommendation of the guidelines for care and use of laboratory animals and the project proposal was approved (No.591/11) by the Ethics Review Committee of the Faculty of Medical Sciences of the University of Sri Jayewardenepura, Sri Lanka.

C *Antihistamine* effect [(Spector W.G. 1956), (Rathnasooriya WD et al., 2005)]

Eighteen Wistar rats were randomly assigned into three groups (n =6 in each). The left posterior lateral side of their skin was cleanly shaved. Group I served as negative control (received Distilled water), Group II received the positive control standard drug (Chlorpheniramine, 0.67mg /kg) and Group III received bee honey. After 1 hour of drug administration, these rats were subcutaneously injected with 50 µl of 200 µg/ ml histamine dihydrochloride (Fluka, Buchs, Switzerland) into the skin where the fur had been shaved, and 2 minutes later the area of the wheal formed was measured and % reductions were calculated.

III RESULTS AND DISCUSSION

A. Evaluation of antihistamine activity

The results of the study showed the bee honey induced an inhibition of wheal formation in the test group (31.0%) which was not statistically significant ($p > 0.05$). The chlorpheniramine treated group showed 40.0% reduction in wheal formation when compared to the negative control group and it was statistically significant ($p < 0.05$)

Table 1: Percentage reductions in wheal formed in Chlorpheniramine, and Bee honey groups in comparison to Negative Control.

Groups	Percentage reductions in wheal formed%
Group – II Chlorpheniramine	40.0
Group III – Bee honey	31.0

IV CONCLUSION

This study reveals that antihistamine effect is not a mechanism of anti-inflammatory activity of bee honey.

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