

# A Pilot Study of Topical Bee Venom for Lip Plumping

Gabrielle Greig, Professor Shaun Holt BPharm (hons), MBChB (hons)  
Victoria University of Wellington, Wellington, New Zealand

## Background

Lip plumpers are cosmetic products used by people with thinner lips who want them to look more full and more "pouting". These products usually work by irritating the thin skin of the lips with compounds such as menthol, camphor, cinnamon or capsaicin. This makes the lips swell slightly and is claimed to also stimulate collagen production. However the irritant effect is short-lived and so products must be reapplied throughout the day to maintain the effects.



Some new products for lip plumping contain honey bee venom (apitoxin), a complex mixture of proteins, the main one being melittin. The venom causes local inflammation and acts as an anticoagulant, leading to swelling.

There are anecdotal reports that it is effective at plumping the lips. It is said to act within a few seconds and last for up to 12 hours and the mechanism is thought to be that it causes a mild inflammation and swelling.

## Methods

This open-label clinical trial assessed the effectiveness and safety of bee venom as a product for lip plumping, and determined the effective dose.

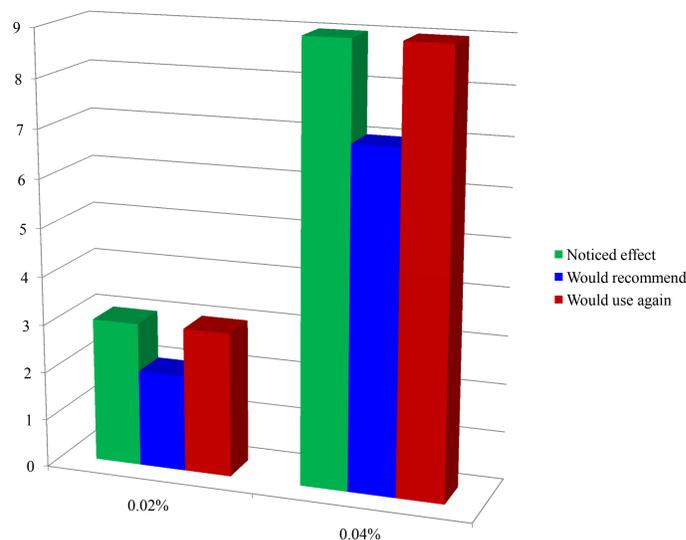
10 women (ages 17-66) with no known allergies to bee products took part in this trial. Two different concentrations of bee venom were assessed: during the first week participants used 0.02% bee venom, and in the second week they used 0.04% bee venom. Participants were asked to apply it onto the lips at least twice a day, and then whenever they felt they wanted to reapply it. No other lip plumping products were used during the study period.

Effectiveness was assessed by:

- asking participants whether there was a noticeable lip plumping effect
- asking participants whether they would recommend the product
- asking participants whether they would use it again
- asking participants how long they thought the effect, if any, lasted for
- by recording adverse events

## Results

When the 10 participants used the 0.02% bee venom concentration, 3/10 said they noticed a lip plumping effect, 2/10 said they would recommend this product and 3/10 would use it again. However, when the same 10 participants used the 0.04% bee venom concentration, 9/10 said they noticed a plumping effect, 7/10 would recommend it to a friend and 9/10 said they would use the product again.



There was a mixed response in terms of how long the lip plumping effect of the higher concentration lasted: 4/9 who noticed an effect said the effects were cumulative and noticed a plumping effect throughout the whole week of using it, the other 5/9 who noticed an effect reported that the effect was instantaneous and lasted from 30 minutes to a few hours.

The only adverse reaction was dry lips reported by 4/10 participants.

## Conclusion

This small, open-label pilot study suggests that topical bee venom might be an effective and safe lip plumper.

## About Bee Venom

Honey bee venom (apitoxin) is a bitter colourless liquid produced in the abdomen of worker bees. When a person is stung a honeybee injects around 0.1 mg of venom via its stinger. Apitoxin is acidic (pH 4.5 to 5.5) and the active portion of the venom is a complex mixture of proteins, which causes local inflammation and acts as an anticoagulant. Around 1% of people are allergic to bee stings.



The main components are:

**Melittin** - the main component (around half), a strong anti-inflammatory agent which induces the production of cortisol

**Apamin** - increases cortisol production and is a mild neurotoxin

**Adolapin** - acts as an anti-inflammatory and analgesic

**Phospholipase A2** - around 10-12% of peptides, an enzyme which degrades the phospholipids which cellular membranes are made of. Also inhibits blood coagulation

**Hyaluronidase** - dilates the capillaries causing inflammation

**Histamine** - involved in the allergic response

## References

- Banks BEC, Shipolini RA. Chemistry and pharmacology of honey-bee venom, 1986 - Academic Press: London
- Mackler BF et al. Allergenic and biological activities of melittin from honey bee venom. *Clinical & Experimental Allergy* 2.4 (1972): 317-323
- Trookman NS, Nathan S, et al. Clinical assessment of a combination lip treatment to restore moisturization and fullness. *The Journal of clinical and aesthetic dermatology* 2.12 (2009): 44
- King Te Piao, et al. Allergens of honey bee venom. *Archives of biochemistry and biophysics* 172.2 (1976): 661-671

## Conflict of Interest

SH is a shareholder of HoneyLab Ltd, which partly owns the product Kanu Bee Venom

## Further information

Professor Shaun Holt  
10 Sterling Gate Drive, Tauranga, New Zealand 3110  
holtshaun@gmail.com  
+64 29 200 11 11  
www.kanubeevenom.com