

“B402”, BEST WAY TO KEEP THE BEES SAFE!

Kimia Bahrami Nezhad
kimia.bahrami@ut.ac.ir

Introduction

Wax moth which belongs to Lepidoptera order, has caused a lot of damage to farmers & ranchers especially the beekeeping sector, in the last decade. The larvae of this insect feed on the beehive while growing & cause its destruction. Therefore, one of the main problems in this industry is the wax moth which has two different kind of strains: *Achroia grisella* (lesser strain) & *Galleria mellonella* (greater strain). In 2020 a product called “B402” or “Certan”, from the “Bt” family was introduced to the market, which was an effective solution against this pest. “B402” is a biological product against wax moths. It is produced by “Valent Bioscience LLC” & “Vita Bee Health”, and then launched in the global market. The difference between this product and the old ones is that this one is up to %100 effective against larvae and is the best and the most complete product to control these.

Materials and Methods

“B402” and all the other products like this are based on a solution of *Bacillus thuringiensis*, which is a gram positive & soil dwelling bacteria. This bacteria is really common to use as a pesticide in biological control. The process to use “Certan” is like the other ones. First of all, according to the number of combs, we measure the amount of water (200 ml for a comb); then we solve a cup of the powder in water and shake it. The last step is to spray the whole combination in to both sides of the combs.

Results

“Certan” is non-toxic for bees and and toxic for human beings. It is also specific for the Lepidoptera species; so while we are using it we have to wear gloves and glasses to protect ourselves against this bacteria.”B402” is not completely natural but it’s one of the functional



FIG 1. From left to right: larvae of wax moth, the damage of it in a comb, spraying the solution.

pesticides that could be used in farms and gardens.

So it's necessary to find other less harmless solutions to solve this problem but until then "Certan" could be useful!



The situation of "B402" in Iran?

The process of production has been done during last year & it has not reached the public in sufficient quantities and also for farmers and phytopathologists. In other words buying this product in Iran is not in bulk and it's not like buying other pesticides so it is found in small quantities. We hope to see the production in Iran by obtaining formulas and manufacturing methods.

References

1. Shojaei, Mahmod, -2015 Classification and Evolutionary Perspective "Outlook of Regional and Biodiversity of Important Families in Iran", Vol. 5, University of Tehran Press, p.495-494.
2. Ahmadzadeh, Masoud, -2013 Biological Control of Plant Diseases-Plant Probiotic Bacteria, University of Tehran Press.
3. Fernández-Chapa.D., Ramírez-Villalobos.J., Galán-Wong.L., -2019 Toxic Potential of *Bacillus thuringiensis*: An Overview.
4. Alford.V., -1999 A Textbook of Agricultural Entomology, Wiley-Blackwell
5. <https://beekeep.info/a-treatise-on-modern-honey-bee-management/managing-diseases-and-pests/biological-control-in-beekeeping/>
6. <https://www.honeybeesonline.com/>
7. https://www.vita-europe.com/beehealth/products/b401_b402/
8. <https://www.valentbiosciences.com/vbc-news/vbc-partners-with-vita-bee-health/>