A New Discovery on How Bee Venom Components Treat Viruses. An Innovative Study on Camel Pox

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Abstract

Background

It is *in vivo* and *in vitro* investigation as the transmission electron microscope showing the Bee Venom (BV), Camel pox virus (CMPV), and the antiviral activity of the drug.

Methods

This study divided into four stages, 1st is CMPV diagnosis, 2nd is clinical trials, 3rd studying BV ultrastructure, 4th is investigating the direct effects of BV on CMPV *in vivo* study by TEM, negative staining.

Results

The 1st part was performed in a separate research under publication, the 2nd is the clinical application which proves the ability of Bee Venom to cure the severe ulcers and nodules of Camel pox very efficiently. It was achieved by subcutaneous injection of bee venom [0.1% concentration] just above the nodules of Camel pox. The complete healing achieved after 2 injections (1/2 ml/ S/C) with 2 weeks intervals. The 3rd part showing BV ultrastructure, melittin appear as the biggest molecules, having very complicating structure that connected to adjacent molecules in certain manner. Melittin is the biggest particle in size but not in numbers. The small molecules are most abundant with characteristic structure unique for each one. All constituent looks like vital and live molecules, which have core and membrane and very specific shapes. The 4th part; Bee Venom and Camel pox virus were incubated for 5 minutes and then examined by transmission electron microscope, negative staining. CMPV has been destructed by complete synergistic actions of whole bee venom.

Conclusion

Our finding proves that whole BV is a potent antiviral *in vivo* and *in vitro*.

Keywords

CMPV; Camel Pox Treatment; TEM; Ultra Structure of Bee Venom

List of Abbreviations

TEM : Transmission Electron Microscope;
CMPV : Camel pox Virus;
BV : Bee Venom;
DNA : Deoxy Ribonucleic Acid;

Background

Bee venom (BV) was used from long time ago in the medical field. Recently the potential of using bee venom to inactivate viruses is strong and promising for...
its special advantages over other known substances regarding the safety and innocuous characteristics. It was stated that bee venom has been used traditionally for the control of pain in various chronic inflammatory diseases. Also the bee venom inhibits the proliferation of rheumatoid synovial fibroblast cells through induction of apoptosis by caspase-3 activation [1-6]. It also reported that subcutaneous bee venom injection produced a marked suppression of leucocyte migration and tumor necrosis factor (TNF)-alpha concentration. The anti-inflammatory effect bee venom administration was mediated in part by the release of catecholamine from the adrenal medulla. And it was found that bee venom phospholipase A2 (PLA) induced high IL-4, IL-5 and IL-13 production in peripheral blood mononuclear cell cultures. Huge number of researches about BV were mentioned that honeybee venom contains many known and unknown compounds. Melittin, is the most prevalent and it is one of the most potent anti-inflammatory agents known (100 times more potent than hydrocortisolo). Adolapin is another strong anti-inflammatory substance and inhibit cyclooxygenase. Apamine inhibits complement C3 activity and blocks calcium-dependent potassium channels, thus enhancing nerve transmission. The other components of BV have synergistic effects such as compound X, hyaluronidase, phospholipase A2, histamine and mast cell degeneration protein which are involved in the inflammatory response [7-20]. Finding a treatment for the skin of camels infected with poxvirus is a great scientific achievement. Because this means that any of those who keep this virus as a biological weapon will find what they planned to become a mirage. This divine grant is found in bee venom, which is considered one of the most important natural antiviral and bacterial substances. This natural product does not require any human intervention and is a product that is suitable for direct use [21- 31]. Therefore, mankind must preserve honey bees, increase their breeding and the production of venom for use in treatment as inexpensive and very safe medicine. From this study we can consider that the family of poxviruses share their pathological characteristics and therefore bee venom can be used in the treatment of skin symptoms of the disease.

Materials and Methods

Camels

Camels infected with CMPV were the subjects of this research. Diagnosis was performed by Transmission Electron Microscope (TEM), negative staining technique on direct samples obtained from the skin lesions. These infected subjects were presented in details in the research article of the author [under publication]. Treatment was performed after collected samples for virus isolation. The owner was helpful and interested in treating his animals. These camels were aged between 1-3 years old, and all imported from the Sudan.

Bee Venom

The BV was obtained as crystalline powder, faintly yellow in color and 1gm BV was dissolved in 1 liter of distilled water. BV diluted solution was then filtered by syringe filter of 0.2 ul pore, in order to remove any debris or contaminants. The obtained solution was that used in treatment of Camelpox skin affections [5].

Transmission Electron Microscope [TEM]: Negative Staining

The solution of BV 0.1% was used to study the ultrastructure of BV under EM. A drop of solution was put on the grid and left for air dry, then a drop of phosphotungestic acid was put on the grid, and incubated for 5 minutes and excess fluid removed. Then the BV was visualize by transmission Electron Microscope. The procedures were performed according to [32].

Bee Venom and Camelpox virus TEM test: Negative Staining

In a tube containing CMPV, adding BV solution from previous step as 2 ml / 5 ul CMPV to BV. At room temperature the mixture incubated for 5 minutes. Then a drop put on a grid and left for five minutes then phosphotungestic acid added, then left for 5 minutes then excess solution removed and then the grid used for TEM examination [32].

Results

First and Second Parts: Clinical Applications

Al Nariah Disease in Camels (Camelpox)

Skin affection characterized by deep wound comprising all skin layers, subcutaneous and musculature, showing necrosis of all layers, hard to cure and causes general illness in infected camels, as it is nature of Camelpox (Figures 1, 2). A single dose of bee venom was capable of healing deep ulcers caused by the virus. It was also observed that skin healing achieved quickly during just 9 days. The appearance of healthy skin under the outer shell indicates...
that this drug (bee venom), inactivates and destroy the infectious agents (viruses and bacteria and other microbes) causing the ulcer, and help in the process of wounds healing efficiently (Figures 3, 4).

Bee Venom cure the severe ulcers and nodules of Camelpox (Figure 5). The inactivating process of bee venom components on Camelpox virus was visualize by TEM. Studying the ultrastructure of Bee Venom showed its components. These new discoveries are a cornerstone and key to many of the great and useful scientific discoveries of humanity. Bee venom (BV) obtained from the sting of Apis mellifera L (the common honeybee insect). The treatment of severe ulcerative skin lesions was achieved by subcutaneous injection of bee venom (0.1% concentration) just above the nodules of Camelpox. Bee venom proves its ability to cure skin ulcers complicated by the secondary bacterial infections. The Complete healing achieved after 2 injections [1/2 ml/ S/C] with 2 weeks intervals. It was clear that the healthy skin appear under superficial crust after only one dose (0.5 ml), two weeks later a second dose was given for more protection and to help in the process of healing. However the general health and signs of relief from irritations of affected camel shows great prognosis. It seems that not only bee venom kill germs and viruses, it could be have in its constituents other healing factors which takes parts in the process. This important achievement would be a great success of humanity against the dangerous effects of poxviruses in both man and animals. The therapeutic effects of bee venom could owned to the direct lethal actions against both of viruses inside nodules and secondary microbial infections (anaerobes and aerobes microorganisms). The ingredients contained in this natural medicine have been identified and many are still unknown, but its medical and healing effects are actually concrete. Research has also shown that bee venom kills the virus, bacteria and other microbes, erases dead tissue, cleanses wounds, and heals wounds and chronic ulcers in a short time, leaving the healthy skin intact.

Figure 1: Young Camel Infected with CMPV, Skin Suffering Multiple Ulcers, Some Flies Irritating the Lesions

Figure 2: Ulcers cured and Healing is Perfect, Even The Thermo-Cautery Lines Became Better, After Two Weeks of Single Dose of Bee Venom S/C Injection
Figure 3: Complete Cure and Good Health Conditions with Healthy Skin and Hair

Figure 4: Complete Cure and Good Health Conditions with Healthy Skin and Hair

Figure 5: BHK-21 Cell Line Isolate Showed CMPV as Large Enveloped Brick-Shape Virus. The Field Have Different Stages Of Viral Replication, A Vision Measuring 112 NM Length X 111 NM Width and the Largest is 344 NM Width X 429 NM Length. (Negative Staining, TEM)
Third Part: Bee Venom Ultrastructure Transmission Electron Microscope (TEM): Negative Staining Method

Bee Venom ultrastructure was seen very clearly under TEM. Melittin appear as the biggest molecules, having very complicating structure that connected to adjacent molecules in certain manner. Melittin is the biggest particle in size but not in numbers. The small molecules are most abundant with characteristic structure unique for each one. All constituent looks like vital and live molecules, which have core and membrane and very specific shapes. Minute molecules are numerous and counted in number more than the big molecules. The figures of TEM showing the whole bee venom components.

**Figure 6:** Bee Venom Ultra Structure Showing Constituents Largest is Electron Dense Round Shape Molecules of Nearly Same Size (Melittin) and others are Very Small Molecules Of Different Shapes and Size. (TEM, Negative Staining)

![Figure 6](image)

**Figure 7:** Bee Venom Ultra Structure Showing Constituents Largest are Electron Dense Round Shape Molecules of Nearly Same Size (Melittin) and Others are Very Small Molecules of Different Shapes and Size. The Large Molecules Showing a Network Filaments Arising from them into the Solvent (TEM, Negative Staining)

![Figure 7](image)

**Figure 8:** Bee Venom Ultrastructure Showing Constituents Largest (Melittin) of Round Shape Molecule of Size and Other Very Small Molecules of Different Shapes and Size with Variance in Electron Densities. (TEM, Negative Staining)

![Bee Venom Ultrastructure](image)

**Figures 9, 10:** Bee Venom Ultrastructure Showing the Small Constituents an Electron Dense Hexagonal Shape Molecules of Size (39.3 NM x 37.5 NM) and Other Very Small Molecules of Different Shapes and Size with Variance in Electron Densities. (TEM, Negative Staining)

![Bee Venom Ultrastructure](image)
Figures 11, 12: Bee Venom Ultrastructure Showing the Largest and the Small Components the Larger is the Melittin Particles and it is an Electron Dense Having a Smooth Membranes and the Small Particles have Different Shapes and Size with Variance in Electron Densities. (TEM, Negative Staining)

Figure 13: Bee Venom Ultrastructure Showing the Details of the Small Components One Appeared as Electron Dense Ovoid in Shape Surrounded by Double Layer Membrane and Inner Core of Size (77.9 nm x 69.4 nm) and the other Small Molecules having Outer Membranes and Inner Core Which Gives them their Characteristic Appearance. (TEM, Negative Staining)
**Figures 14, 15:** Bee Venom Ultra Structure Showing the Details of the Small Molecules Having Outer Membranes and Inner Core which gives them their Characteristic Appearance. They have different Shapes and Size with Variance in Electron Densities (TEM, Negative Staining)

![Bee Venom Ultra Structure](image1)

**Figures 16, 17:** Bee Venom Ultrastructure Showing Constituents Largest are Electron Dense Round Shape Molecules of Nearly Same Size (Melittin) and others are Very Small Molecules of Different Shapes and Size. The Small Molecules having Outer Membranes and Inner Core which gives them their Characteristic Appearance. (TEM, Negative Staining)

![Bee Venom Ultrastructure](image2)
Fourth part: Bee Venom and Camelpox Virus: TEM Study

Bee Venom and Camelpox virus were incubated for 5 minutes and then examined by transmission electron microscope, negative staining. TEM visualizing the whole process and the tactics of destroying the infectious particles of CMPV by BV constituents, as the small molecules of bee venom has been disappeared and the melittin looks consumed and smaller in size, and the viral particles engulfed by melittin molecules. CMP viruses changed in size and the envelopes were disappeared showing the internal core of virions. It is supposed that the BV constituents dissolve the envelopes and enter the virions making them small in size and the melittin by its charges attracts the viruses and engulfing them.

Figures 18 to 20: BV+ CMPV; These Images are Showing the Shape of the Mixture and the Predominance of the Melittin Particles in the Scene, it is Indicative of its Presence and Concentration in the Mixture. Morphological Changes are also Shown in the Melittin Molecules and in the Rest of the Mixture Compounds. There is Absence of Usual form of Negative Stain Acid Dye (Phosphotungestic Acid). It Reacted in the Mixture and Lost its Features. (TEM, Negative Staining)
Figures 21 to 24: BV+ CMPV; This Images are Showing the CMPV Features Have Changed, Shrunk and Decreased in Size as a Result of the Addition of this Drug. Some Melittin Molecules Engulfing the Viral Particles. We see Viruses that are Bound to the Wall of Melittin Molecules and are Destined to Enter. We also See Inside the Melittin Some Particles Similar to the Virus. We Only See Viruses on their Way Inside, and we do not see Viruses in their Natural form. Their Shape and Size have disappeared. (TEM, Negative Staining)
Figures 25 to 31: BV+ CMPV; These Images are Showing Destructive Effects of Bee Venom and the Tactics of the Inactivation of CMPV. We Note that the Virus Turned into Particles Without External Envelope, of Small Size and Different in their Shapes and Sizes, Weak Electron Density and Light-Colored and Worn Out. Note the Disappearance of Small-Sized Materials. We See Only the Deformed Viruses and the Melittin Molecules Reactions to Infectious Particles by Swallow. (TEM, Negative Staining)
Figure 32: BV+ CMPV; This Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. We Observe the Consumption of Melittin Particles as a Result of their Efforts in the Killing of Viruses and their Interaction with the Medium and its Various Substances. (TEM, Negative Staining)

Figures 33 to 35: BV+ CMPV; This images are showing the CMPV features have changed, shrunk and decreased in size as a result of the addition of this drug. We do not see viruses in their natural form. Their specific shape and size have disappeared. This figure showing the virion without envelope revealing its internal core surrounded with electron dense double layers of circular structure. Note the naked viruses in between the bee venom particles which consumed in the reaction. (TEM, negative staining)
Figures 36, 37: BV⁺ CMPV; These Images Showing the Melittin Molecules Features Have Changed, Shrunk and Decreased in Size. We Observe the Consumption of Melittin Particles as a Result of their Efforts in the Killing of Viruses and Their Interaction with the Medium and its Various Substances. Note the Naked Viruses in between the bee Venom Particles Which Consumed in the Reaction. (TEM, Negative Staining)
**Figures 38 to 41:** BV+ CMPV; These Images Showing the Melittin Molecules and the Viruses Inside the Media. We Observe the Consumption of Melittin Particles as a Result of their Efforts in the killing of Viruses and their Interaction with the Medium and its Various Substances. Note the Naked Viruses in between the Bee Venom Particles which Consumed in the Reaction. (TEM, Negative Staining)
**Figures 42 to 48:** BV+ CMPV; These Images Showing the Melittin Molecules Decreased in Size and the Connections with the Viruses. We Observe the Interaction Inside the Medium and its Various Substances. Note the Small Viruses in between the Bee Venom Particles which Consumed in the Reaction. (TEM, Negative Staining)
Figures 49 to 51: BV+ CMPV; These Images Showing the Bee Venom Molecules Destructing CMPV Removing its Envelopes, Turning them into Very Small Particles. We Observe the Consumption of Melittin Particles as a Result of their Efforts in the Killing of Viruses and their Interaction with the Medium and its Various Substances. Note the Naked Viruses in between the Bee Venom Particles which Consumed in the Reaction. (TEM, Negative Staining)
Figures 52, 53: BV+ CMPV; These images are showing the melittin molecules features have changed, shrunk and decreased in size. Note the attachment of the virus into the trabecular membranes of melittin of the bee venom and partial removal of viral envelope, showing some of the internal bodies of CMPV. (TEM, negative staining)
Figures 54, 55: BV+ CMPV; These images are showing the melittin molecules and the naked virus and the attachment of the virus into the trabecular membranes of melittin with the complete disintegration and removal of viral envelope; revealing CMPV core surrounded with delicate membrane. (TEM, negative staining)
Figures 56, 57: BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. Melittin Molecules are attracting the Naked and Dead Viruses with Complete Disintegration and Removal of Viral Envelope. (TEM, Negative Staining)

Figures 58, 59: BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. Note the Small Size of the Virus and Complete Disintegration and Removal of Viral Envelope, Showing the Core of CMPV Surrounded by Delicate Membrane. (TEM, Negative Staining)
**Figures 60 to 62:** BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. Note the Naked Vision and Complete Disintegration and Removal of Viral Envelope, Showing the Core of CMPV Contains Two Lateral Bodies Surrounded by Delicate Membrane. (TEM, Negative Staining)
Figure 63: BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. Note the Small Size of the Viruses. Melittin Molecules are Attracting the Naked and Dead Viruses with Complete Disintegration and Removal of Viral Envelope. (TEM, Negative Staining)

Figures 64, 65: BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. Note the Small Size of the Virus and Complete Disintegration and Removal of Viral Envelope, Showing the Core of CMPV Surrounded by Delicate Membrane. (TEM, Negative Staining)
Figures 66, 67: BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, the Interaction Inside the Medium and its Various Substances. Note the Small Viruses in between the Bee Venom Particles which Consumed in the Reaction. (TEM, Negative Staining)
Discussion

First and Second Parts: Clinical Application

Our findings proves that whole Bee venom, the pure natural medicine, can cure skin ulcers, grows within it deadly viruses and bacteria of all kinds, aerobics and anaerobic. Dead tissue, pus, infected blood vessels and toxins are secreted from all of that process. It is a drug manufactured within the bee is one of the most important medicines that exist in nature and do not need any intervention of the human and can be used as it is. It was noted that the doses depend on the degree of infection and that the local injection consumes substances in the composition of the drug so that the dose cannot be calculated cumulatively. Which means that in the severe lesions of the skin as in the current situation we can use what is required of the right position to be focused on the area of injury.

The direct importance of what we have reached is in the treatment of this disease and thus the economic benefit from the preservation of the animal. Camels that are cured will also be immune to diseases caused by the family of poxviruses. Also, those camels treated with bees venom will also be indirectly treated from other diseases that were carrying them. It is therefore an advantage in counter-control. We are so optimistic that injecting bees venom under the skin into imported, local, diseased or meat/ milk producing animals can dispense with the use of veterinary vaccines and many antibiotics. Moreover,

**Figures 68, 69:** BV+ CMPV; These Images are Showing the Melittin Molecules Features have Changed, Shrunk and Decreased in Size. Note the Small Size of the Viruses and Complete Disintegration and Removal of Viral Envelopes, Showing the Cores of CMPV Surrounded by Delicate Membrane. (TEM, Negative Staining)
the injection of bee venom under the skin enables us to produce animal wealth free from the residues of drugs and harmful substances used in vaccines and medicines. In addition to the great economic feasibility of dispensing with the previously mentioned materials, the percentage of livestock losses due to diseases will be very low and thus increase production and improve quality.

It was noted that the house flies were kept away from the wounds when they were cured. Which leads us to say that dead tissue and pus are factors attract that insect. In this case, the animal did not receive any local or general medications. The animal was not vaccinated against any viral or bacterial diseases.

The benefit of this study can be applied in many different ways, it shows us how important this drug and how to benefit from its therapeutic effects. If it is necessary to use this drug in the preparation of veterinary vaccines, its advantages outweigh all other substances currently applied. And more than all of them being a safe natural component. As preventive medicine it can emphasize that the use of bee venom as a preventive treatment will enable the body to form antibodies against viruses that contain it indiscriminately. This is because this drug will kill those viruses in places where they multiply within organs, infected cells or lymph nodes. Since laboratory studies in fertilized eggs infected with viruses have shown that the virus was killed inside the infected cell and inside the fertilized eggs without causing side effects of the fetal tissue. These results call on us to use this medicine to fight disease transmission among countries and to treat diseases as well as to protect healthy animals during the spread of epidemics.

However, the use of Bee Venom as diluted solutions in distilled water (0.1%) for prompt protection of laboratory workers in case of accidental injection or expose to infectious agent: The accidental injection or needle injuries during laboratory procedures can be tolerated by prompt injection of bee venom in the site of entry or exposure.

It can also use bee venom as an alternative to veterinary vaccines. Because it will kill viruses found in vital organs and weakened by immunity and subclinical infection. It will also kill viruses in the herd, so that the virus cannot spread among them. Research has also shown that bee venom kills the virus, bacteria and other microbes, erases dead tissue, cleanses wounds, and heals wounds and chronic ulcers in a short time, leaving the healthy skin intact. These studies prove to us that we are facing a very important medicine, accuracy and effectiveness. Its use in the medical field will have no limits or obstacles. Will have a great economic benefit in addition to the expected role in preventing the spread of epidemics between countries and between humans and animals. Knowing the way this medicine works does not require complications or inconsistencies. It is the miracle that it has created from the belly of the bees, perhaps one day we realize it, and perhaps we will never realize it.

**Bee Venom: TEM Study**

The transmission electron microscope, negative staining, showing the very small components vary in size and shape. This indicates the difference in function and chemical composition. It is observed through the study of the shape of small particles, as some of them contain an outer membrane, similar to an integrated object, contains a precise installation and a specific and distinctive form. The number of those ingredients is very large.

The bee venom largest component [melittin] appear circular and equal in size and are quite similar to each other and are connected to a network of membranous threads coming out of the surrounding membranes. These particles are surrounded by a multilayered membrane. Its size is very large compared to the rest of the ingredients. They are large in size and exceed the rest of the formations in sizes and not in numbers. We can believe that the larger particles are backbone and structural material that gives bee venom its physical properties.

Whole bee venom components are chemically active substances that works together in a systematic, specific and cooperative manner. It must have a mind or a program of work in which all components of the material are committed to the work entrusted to them. Is the manager the big part (melittin) or the interaction was organized in advance when the material (whole bee venom) was created in the belly of bees.

It could emphasize that the largest molecules are the polypeptide melittin. The other BV components that have been chemically measured are those micro-particles.

**Bee venom and Camelpox virus: TEM Study**

Bee Venom and Camelpox virus were incubated for 5 minutes and then examined by transmission electron microscope, negative staining. TEM visualizing the whole process and the tactics of destroying the infectious particles of CMPV by BV constituents, as the small molecules of bee venom has been disappeared and the melittin looks
consumed and smaller in size, and the viral particles engulfed by melittin molecules. CMP viruses changed in size and the envelopes were disappeared showing the internal core of virions. It is supposed that the BV constituents dissolve the envelopes and enter the virions making them small in size and the melittin by its charges attracts the viruses and engulfing them.

The image of the mixture is expressed as a bee venom response to viruses. The fine particles disappeared and ran out at the beginning of the reaction. The large molecules were depleted and consumed as a result of their interaction with viruses. It has become smaller in size and transformed from a circular shape to random forms of varying size and shape.

The rest of the decaying viruses appeared inside the large molecules (melittin). And other particles appeared attached to the edges of melittin particles and the other appeared on the way to enter inside the melittin molecules.

The melittin is used and became with the extent of usage smaller and smaller, its membranes became serrated and the circular form became deformed. The viral particles were seen inside the large molecules of bee venom, some viruses were attached to the molecules showing the engulfing stages. Some figures were showing the viruses naked with core and surrounded by electron dense membranes. Another viruses showing the two lateral bodies of poxviruses. The destructive power seems very strong and very rapid with high potency, indicating that melittin plays very important role in the whole process where ever the smaller constituents of bee venom plays high specialized roles in killing the viruses, dissolving the envelopes and other virions components that renders the larger virus molecules smaller and smaller. The camelpox viruses has killed very rapidly and destructed completely by high organized tactics of BV components. It is very efficient process, complete inactivating and disintegrating the virions, turning them into dissolved substances. It seems that if the infected animals treated by bee venom, the virions will disappeared completely from the lesions. This view has been proven by the clinical application on infected camels, whereas the healing process was very rapidly, very clean, absence of fever, disappearance of viruses from the lesions and accompanied by better general health conditions.

The figures showing the bee venom and camelpox viruses mixture in different situations pointing out the antiviral activity and the whole process of killing these DNA viruses. This is the first time in history we seeing this process as it is in reality, not as chemical reactions and speculations. However, the number of substances that present in bee venom were also seen, very large in number and very different in constructions. These findings are the key to use bee venom in our modern times for the benefits of the humanity. The first part of test showing the contents of bee venom, its normal shapes and its normal sizes, the second test showing the interaction between bee venom and the infectious camelpox viruses, whereas the contents reacts to these dangerous particles, destructing and engulfing them and the process leading to the disappearance of normal picture of both sides (bee venom and CMPV).

Based on these results, the applications of bee venom in the field of virology have become numerous and are not limited to treatment only, but can be used precisely and very accurately for the production of vaccines as well as in the diagnosis and study the internal composition of viruses.

This simple experiment showed an intolerable issue and proved perfectly and effectively the ability of bee venom in the killing of viruses and their complete elimination quickly and effectively of the highest quality. It is a question that cannot describe its beauty. Absolute integration and tremendous ability to pick up the harmful element and disassemble, kill and swallow.

Through this scientific research of high honesty, we offer humanity a safe and effective medicine for the cure of viruses that destroy health. We do not exaggerate if we say that bee venom will replace thousands of types of drugs. It is a drug with no side effects, it treats and improves immunity and purifies the body of many of the ills at the same time.

Very important applications are expected as a result of this enormous scientific discovery.

Looking at images tells us a lot about bee venom as well as about the virus. They reveal bee venom molecules and reveal CMP viruses from within them. The different forms of viruses have also appeared to us. These forms are the result of the interaction of bee venom and CMPV and the resulting disintegration.

These clear images are of high quality. It’s a really wonderful experience. It’s a miracle. The hope generated by such research is a source of optimism. We can now study viruses and their interaction with bee venom in the same simple innovative way. We can change the exposure time of the virus to the drug, we can reduce or increase and we can do everything we want to know and see the images.
shown in the detector.

**Recommendations**

These observations prove that bee venom must be officially recognized as a treatment for viral diseases and available in the market at cheap prices and accessible to all. Countries must adhere to the interests of people and not to the interests of any parties for the sake of financial gain. The speed in making this drug available to people is a virtue that should not be hindered by actions that are of no use.

**Conflict of Interest**

None.

**References**


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