

Bee Venom Used for the Treatment of Rheumatoid Arthritis

Sidra Altaf¹ and Tasawar Iqbal^{2*}

¹Department of Pharmacy, University of Agriculture Faisalabad, Pakistan

²Institute of Physiology and Pharmacology, University of Agriculture Faisalabad, Pakistan

*Corresponding author: Tasawar Iqbal, Institute of Physiology and Pharmacology, University of Agriculture Faisalabad, Pakistan

ARTICLE INFO

Received: 📅 October 02, 2023

Published: 📅 October 10, 2023

Citation: Sidra Altaf and Tasawar Iqbal. Bee Venom Used for the Treatment of Rheumatoid Arthritis. Biomed J Sci & Tech Res 53(2)-2023. BJSTR. MS.ID.008370.

ABSTRACT

This article explores the effectiveness of bee venom as a treatment for rheumatoid arthritis, an autoimmune disorder that leads to inflammation in the joints. Bee venom contains melittin and adolapin for inflammation and pain relief. The interventions aim to reduce inflammation and pain. Study outcomes vary due to limited samples, subpar methods, and lack of standardization. Insufficient dosage worsens bee venom ambiguity. This study emphasizes the importance of consulting healthcare professionals specifically rheumatologists before considering Bee Venom Therapy or other treatments. To control rheumatoid arthritis informed choices, medical oversight and open communication are vital. Bee venom is essential in managing symptoms improving joint health and enhancing quality of life in Rheumatoid Arthritis.

Introduction

Rheumatoid Arthritis Explanation

Rheumatoid arthritis is a persistent condition where the body's immune system mistakenly attacks and inflames joints, resulting in discomfort, puffed-upness, and limited mobility. Rheumatoid arthritis occurs when the body's immune system mistakenly targets and damages its own tissues, specifically the synovium. This reaction negatively affects joints, causing a decrease in their ability to function properly. Rheumatoid arthritis is a prevalent autoimmune condition that mainly affects women on a global scale. The state of affairs is highly unpredictable. Rheumatoid arthritis impacts various parts of the body, including joints, skin, eyes, lungs, and blood vessels. Not seeking treatment results in disability and a decreased standard of living. Although conventional treatments for Rheumatoid arthritis are successful, some individuals opt for alternative therapies to achieve additional relief or incorporate them with conventional methods [1].

Inclusion of Alternative Therapeutic Approaches, Such as Bee Venom Therapy

Bee Venom Therapy has been identified as a prospective therapeutic approach for managing rheumatoid arthritis. Bee venom derived from *Apis mellifera*, commonly known as honeybees, constitutes a multifaceted amalgamation of bioactive constituents. The constituents encompass melittin, adolapin, and hyaluronidase, which exhibit anti-inflammatory and analgesic properties. Bee Venom Therapy has demonstrated potential in mitigating joint inflammation and ameliorating the sensations of pain associated with rheumatoid arthritis. In the subsequent sections, an investigation will be conducted on the topic of bee venom therapy as a potential treatment for rheumatoid arthritis. The inquiry will focus on evaluating its efficacy as well as identifying the associated risks. Prior to engaging in alternative therapy, it is advisable for individuals to seek advice from healthcare professionals in order to guarantee well-informed and concordant treatment choices [2].

Mechanism and Background of Bee Venom Therapy

Historical Used Bee Venom Therapy

Apitherapy, known as Bee Venom Therapy, constitutes an age-old alternative therapeutic approach that harnesses the therapeutic properties of bee venom to address afflictions such as arthritis. Numerous ancient civilizations, such as the Egyptians, Greeks, and Chinese, employed bee venom as a medicinal resource. There has been recent resurgence in attention towards Bee Venom therapy, as its advocates emphasize its potential advantages in treating autoimmune and inflammatory disorders.

Bee Venom Composition

Bee venom is a mixture that consists of several active components with biological effects. Some important components are comprised including.

Melittin

This specific peptide is recognized as a significant element in bee venom and renowned for its strong abilities in reducing inflammation.

Adolapin

Another peptide found in bee venom that potentially plays a role in its ability to reduce inflammation and provide pain relief.

Hyaluronidase

An enzyme that is supposed to facilitate the spreading of other venom components into tissues, potentially assisting in their impact (Figure 1).



Figure 1: Dissection of Honey Bee Venom Sac.

Peptides and Enzymes

These compounds, along with various others, play a role in the complex biochemical makeup of bee venom [3].

Mechanisms of Action Rheumatoid Arthritis Treated with Bee Venom Therapy

Those in favor of bee venom therapy suggest various ways in which bee venom can potentially have beneficial effects on rheumatoid arthritis.

Anti-Inflammatory Properties of Bee Venom

Bee venom is thought to have anti-inflammatory properties due to the presence of substances like melittin and adolapin. Bee venom could potentially relieve symptoms and slow down the advancement

of rheumatoid arthritis by reducing inflammation in the joints, as inflammation is a significant characteristic of this condition.

Pain Relieving Effects of Bee Venom

The pain-relieving properties of bee venom, specifically melittin, could potentially alleviate the pain and distress associated with rheumatoid arthritis. Bee venom therapy may help alleviate joint pain and stiffness by adjusting the pain pathways and receptors [4].

Indication of Bee Venom Therapy Can Help with Rheumatoid Arthritis

Conversation of Clinical Trials and Research Studies

Bee venom therapy shows promise in the treatment of rheumatoid arthritis, offering great potential for its benefits. These investi-

gations have been conducted to evaluate the potential of bee venom compounds in alleviating symptoms of RA and enhancing overall disease outcomes.

Limitations of Current Evidence

The results of various studies investigating bee venom therapy for rheumatoid arthritis have been inconclusive and frequently produce conflicting outcomes. Several studies have found that bee venom could potentially lessen joint pain, inflammation, and enhance joint function for certain individuals with rheumatoid arthritis. The beneficial impacts are linked to the anti-inflammatory and pain-relieving qualities found in the components of bee venom.

Need of Large Scale and High Quality Clinical Trials

There is a glaring absence of extensive, carefully planned experiments that utilize placebos to study the effectiveness of bee venom therapy in treating rheumatoid arthritis. Conducting trials is crucial in determining the connection between bee venom therapy and its potential consequences. It is difficult to ascertain the legitimacy of benefits without conducting rigorous trials, as they could potentially be mere coincidences or placebo effects. Furthermore, the effectiveness of bee venom remains uncertain due to the lack of standardized dosing regimens, administration methods, and variants of bee venom compositions utilized in different studies. Consistent outcomes are hindered due to the absence of uniform guidelines [5].

Regular Medical Treatments for Rheumatoid Arthritis

Conventional Treatment Selections

Rheumatoid arthritis necessitates a thorough and multifaceted management strategy due to its chronic autoimmune nature. Healthcare providers commonly use a variety of treatment methods to successfully manage symptoms, reduce inflammation, hinder the advancement of rheumatoid arthritis, and enhance the general well-being of patients.

Disease-Modifying Anti-Rheumatic Drugs

Disease-modifying anti-rheumatic drugs play a vital role in the treatment of rheumatoid arthritis. These medications have the goal of altering the fundamental disease process and protection the joints against damage. These treatments for rheumatoid arthritis consist of conventional Disease-Modifying Anti-Rheumatic Drugs (such as methotrexate), targeted synthetic Disease-Modifying Anti-Rheumatic Drugs (like tofacitinib), and biologic Disease-Modifying Anti-Rheumatic Drugs (such as adalimumab and etanercept). Their purpose is to suppress the abnormal immune response associated with rheumatoid arthritis.

Non-Steroidal Anti-Inflammatory Drugs

NSAIDs aid in pain relief, decrease inflammation, and enhance joint functionality by blocking specific enzymes that are part of the inflammation process. Their function is to alleviate symptoms but they do not affect the progression of the disease. Some examples of these drugs are ibuprofen and naproxen.

Corticosteroids

Corticosteroids like prednisone are powerful medications that effectively reduce inflammation, quickly alleviating pain and swelling. They are commonly employed temporarily to control sudden episodes of RA.

Biologic Therapies

Biologics refer to a type of DMARDs that aim to selectively target molecules contributing to inflammation. Typically, these treatments are reserved for individuals with moderate to severe Rheumatoid Arthritis who have not had satisfactory responses to traditional therapies. Biological medications are typically given via shots or drips and can greatly decrease disease activity and protect against joint harm [6].

RA Treatment Importance Based on Suggestion

The development of evidence-based treatments for rheumatoid arthritis relies on scientific investigation thorough experimentation and proven efficacy. Smart interventions help relieve symptoms and reduce inflammation in the joints. Using evidence-based therapies is essential for effectively managing the complexities of Rheumatoid Arthritis. These therapies offer a reliable and comprehensive method. Healthcare professionals utilize evidence-based recommendations to create personalized treatment approaches that consider the severity of the disease, any accompanying medical conditions and the preferences of the patient. In order to receive a well-informed treatment plan, it is advised to seek advice from a rheumatologist or a medical expert [7].

Risks Factor

Adverse Effects of Bee Venom

The therapeutic application of bee venom entails its administration via injection, which may induce allergic responses in select individuals. The severity of allergic reactions to bee stings exhibits a range, wherein milder symptoms encompass localized manifestation such as erythema, edema, and pruritus at the site of sting, whereas more severe responses can engender respiratory distress, emergence of urticaria, and potentially life-threatening anaphylaxis. Anaphylaxis constitutes a critical allergic response with potentially fatal consequences, necessitating urgent medical intervention. Individuals who have undergone allergic responses to bee stings ought to exercise utmost caution and adopt additional preventive measures when contemplating utilization of bee venom therapy [8].

Bee Venom Therapy

One of the primary obstacles facing the field of bee venom treatment revolves around the absence of established, standardized protocols for both dosage and administration. Establishing consistent and reliable treatment guidelines proves to be a formidable task, given the diverse range of bee venom types, varying methods of preparation, and the varying dosages employed by different practitioners. The lack of standardized practices gives rise to the probability of unfavorable outcomes and presents challenges in accurately assessing the efficacy of Bee venom therapy for rheumatoid arthritis [9].

Advised of Healthcare Professionals about Bee Venom Therapy

Before exploring various alternative therapies, individuals suffering from rheumatoid arthritis are advised to consult with a healthcare professional, particularly a rheumatologist. Healthcare practitioners assess the prospective hazards and benefits of medical interventions through careful analysis of an individual's medical history. These professionals offer aid in making informed decisions, proffer treatments based on empirical evidence, and closely oversee any adverse effects or interactions with medications (Figure 2) [10].

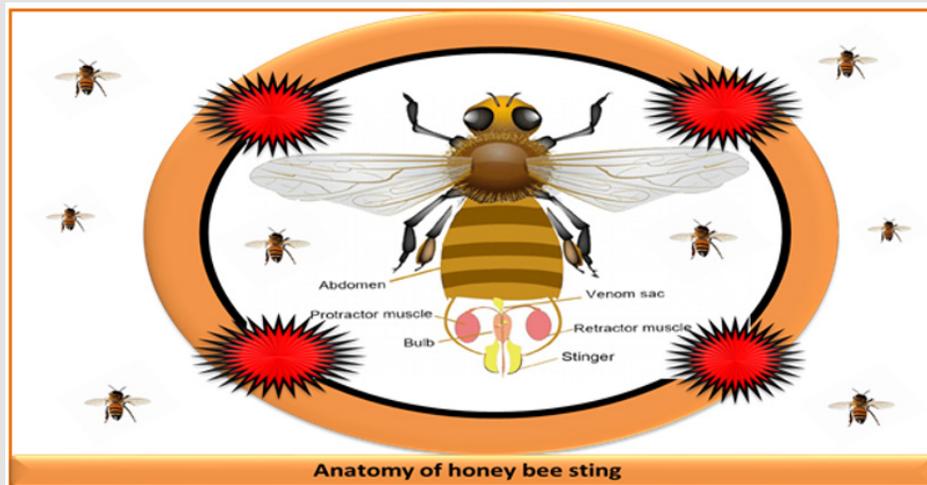


Figure 2: Anatomy of Honey Bee Sting.

Importance of professional Guidance about Rheumatoid Arthritis Treatments

Consulting reliable healthcare professionals is imperative when managing a complex and chronic ailment like rheumatoid arthritis. Rheumatologists, in tandem with other healthcare practitioners specializing in autoimmune disorders, possess the requisite expertise and knowledge to provide comprehensive assessments and evidence-based therapeutic advice. Healthcare professionals possessing the requisite qualifications are adequately prepared to render guidance and aid to individuals grappling with the intricate challenges associated with the management of rheumatoid arthritis. They possess the capability to proficiently address particular symptoms and formulate personalized therapeutic strategies that are customized based on the individual's unique health profile [11].

Advantages and Disadvantages of Alternative Treatments

Healthcare professionals play a crucial role in assessing alternative healthcare treatments, like bee venom therapy. Frequently, there is limited scientific evidence to fully support these therapies, and they

may carry potential risks like allergies or negative interactions with medications that are currently being taken. Healthcare providers can engage in honest and open discussions about the possible benefits and limitations of alternative treatments. This helps people in making well-informed decisions that give importance to their overall well-being and contentment [12].

Conclusion

In this research on utilizing bee venom therapy for treating rheumatoid arthritis, we evaluated its advantages, mechanisms, and constraints. We have discussed the constituents and workings of bee venom, as well as the lack of conclusive research findings. Bee venom therapy's potential hazards include allergies and lack of uniform dosage guidelines. These therapies address the mechanisms of rheumatoid arthritis, control disease activity, protect joints from damage, and enhance overall well-being. They aim to specifically target RA, manage its symptoms, prevent further harm to the joints, and enhance the overall quality of life. Individuals suffering from rheumatoid arthritis require professional guidance during the process of making treatment choices. Seeking guidance from healthcare experts, particularly

rheumatologists, is crucial in developing a personalized treatment strategy that addresses individual health requirements and is in line with up-to-date medical research. It is recommended for individuals to exercise caution when considering alternative treatments like bee venom therapy, and to prioritize medical advice due to the potential risks and absence of standardized protocols.

References

1. Shailaja KS, Saraswati P (2015) Collagen Vascular Disease-A Review. International Journal of Advances in Nursing Management 3(4): 382-384.
2. Kumar LD, Karthik R, Gayathri N, Sivasudha T (2016) Advancement in contemporary diagnostic and therapeutic approaches for rheumatoid arthritis. Biomedicine & Pharmacotherapy 79: 52-61.
3. Atayoglu AT, Atar S, Atayoglu AG, Demirhan E, Ozturk A, et al. (2023) Short-Term Safety and Effectiveness of Apipuncture in Knee Osteoarthritis: A Single-Arm Clinical Trial. Medical Science and Discovery 10(8): 527-534.
4. Zhang S, Liu Y, Ye Y, Wang XR, Lin LT, et al. (2018) Bee venom therapy: Potential mechanisms and therapeutic applications. Toxicon 148: 64-73.
5. Bogdanov S (2015) Bee venom: composition, health, medicine: a review. Peptides 1: 1-20.
6. Lee JA, Son MJ, Choi J, Jun JH, Kim JI, et al. (2014) Bee venom acupuncture for rheumatoid arthritis: a systematic review of randomised clinical trials. BMJ open 4(11): e006140.
7. Coubier S, Dimond R, Bros-Facer V (2019) Share and protect our health data: an evidence based approach to rare disease patients' perspectives on data sharing and data protection-quantitative survey and recommendations. Orphanet journal of rare diseases 14: 1-5.
8. Lee G, Bae H (2016) Anti-inflammatory applications of melittin, a major component of bee venom: Detailed mechanism of action and adverse effects. Molecules 21(5): 616.
9. Khalil A, Elesawy BH, Ali TM, Ahmed OM (2021) Bee venom: From venom to drug. Molecules 26(16): 4941.
10. Trumbeckaite S, Dauksiene J, Bernatoniene J, Janulis V (2015) Knowledge, attitudes, and usage of apitherapy for disease prevention and treatment among undergraduate pharmacy students in Lithuania. Evidence-Based Complementary and Alternative Medicine.
11. Gupta RK, Stangaciu S (2014) Apitherapy: holistic healing through the honeybee and bee products in countries with poor healthcare system. In-Beekeeping for poverty alleviation and livelihood security Springer Dordrecht, pp. 413-446.
12. Bellik Y (2015) Bee venom: its potential use in alternative medicine. Anti-infective agents 13(1): 3-16.

ISSN: 2574-1241

DOI: 10.26717/BJSTR.2023.53.008370

Tasawar Iqbal. Biomed J Sci & Tech Res



This work is licensed under Creative Commons Attribution 4.0 License

Submission Link: <https://biomedres.us/submit-manuscript.php>



Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles

<https://biomedres.us/>