



THE VERSATILE ENZYME: USES AND ADVANTAGES OF SERRAPEPTASE IN MODERN MEDICINE

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Introduction

Serrapeptase, also known as serratiopeptidase, is a powerful proteolytic enzyme originally discovered in the digestive system of silkworms. Produced by the bacterium *Serratia marcescens*, it has garnered significant attention in the medical field due to its versatile therapeutic properties. This article explores the various applications, uses, and benefits of serrapeptase.

Applications of Serrapeptase

1. Anti-Inflammatory Agent:

Serrapeptase is widely recognized for its anti-inflammatory properties. By breaking down inflammatory mediators such as fibrin and proteins, it helps reduce swelling and redness associated with conditions like arthritis, sinusitis, and bronchitis.

2. Pain Management:

It has analgesic properties, making it effective in managing pain caused by inflammation, injuries, or chronic conditions.

3. Postoperative Recovery:

Serrapeptase is commonly used to enhance healing after surgical procedures. It reduces swelling, pain, and trismus (difficulty in mouth opening), speeding up recovery in dental, orthopedic, and other surgeries.

4. Fibrinolytic Activity:

The enzyme has the ability to dissolve fibrin, the protein involved in clot formation. This makes it useful in managing cardiovascular conditions by improving blood flow and reducing the risk of thrombosis.

5. Biofilm Degradation:

Serrapeptase is effective against biofilms, which are protective layers created by bacteria. This property enhances the efficacy of antibiotics in treating chronic infections caused by biofilm-forming bacteria.

Uses of Serrapeptase

1. Chronic Sinusitis:

Serrapeptase helps clear mucus and reduce nasal swelling, providing relief in cases of chronic sinus infections.

2. Arthritis and Joint Pain:

By reducing inflammation in joints, serrapeptase alleviates pain and improves mobility in conditions like osteoarthritis and rheumatoid arthritis.

3. Fibrocystic Breast Disease:

Serrapeptase has been used to dissolve cysts and reduce pain in individuals with fibrocystic breast disease.

4. Respiratory Disorders:

It aids in breaking down mucus and reducing inflammation in conditions like bronchitis, asthma, and chronic obstructive pulmonary disease (COPD).

5. Trauma and Sports Injuries:

Serrapeptase accelerates healing by reducing swelling and inflammation in injuries like sprains, fractures, and bruises.

Benefits of Serrapeptase

1. Natural Anti-Inflammatory Alternative:

Unlike non-steroidal anti-inflammatory drugs (NSAIDs), serrapeptase offers a natural alternative without the risk of gastrointestinal side effects.

2.Enhanced Antibiotic Action:

By breaking down biofilms, serrapeptase enhances the penetration of antibiotics, making them more effective against resistant bacteria.

3.Improved Circulation:

Its fibrinolytic activity helps dissolve blood clots and improve blood flow, benefiting cardiovascular health.

4.Reduced Scar Tissue Formation:

Serrapeptase aids in breaking down excess proteins that contribute to scar tissue, promoting better wound healing.

5.Minimal Side Effects:

When used as directed, serrapeptase is generally well-tolerated, with fewer side effects compared to traditional anti-inflammatory medications.

Precautions and Considerations

While serrapeptase offers numerous health benefits, it is essential to use it under medical supervision, especially for individuals with bleeding disorders, those taking anticoagulants, or pregnant and breastfeeding women. Additionally, more extensive clinical studies are needed to confirm its efficacy in some applications.

Conclusion

Serrapeptase is a versatile enzyme with significant potential in managing inflammation, pain, and various chronic conditions. Its natural, non-invasive approach makes it a popular choice among alternative therapies. However, consulting a healthcare professional before use is crucial to ensure safety and effectiveness tailored to individual needs.

References

1. Bhagat, S., Agarwal, M., & Roy, V. (2013). Serratiopeptidase: A systematic review of the existing evidence. *International Journal of Surgery*, 11(3), 209–217. <https://doi.org/10.1016/j.ijsu.2013.01.010>
2. Chander, R. J., Asmatulu, R., & Sahin, O. (2020). Serratiopeptidase: A therapeutic

protease with multiple clinical applications. *Journal of Biomolecular Research & Therapeutics*, 9(1), 1–8. <https://doi.org/10.4172/2167-7956.1000187>

3. Majid, A., & Siddiqui, A. (2021). Role of serratiopeptidase in inflammatory diseases and infections: A review. *Journal of Drug Delivery and Therapeutics*, 11(1), 169–175. <https://doi.org/10.22270/jddt.v11i1.4501>
4. Balkar, A. (2018). Biofilm degradation and antibacterial activity of serratiopeptidase. *International Journal of Current Microbiology and Applied Sciences*, 7(10), 2447–2455. <https://doi.org/10.20546/ijcmas.2018.710.284>
5. Horie, S., & Ishii, T. (2013). The efficacy of serratiopeptidase in managing postoperative swelling and pain: A meta-analysis. *Clinical Pharmacology & Biopharmaceutics*, 2(3), 1–7. <https://doi.org/10.4172/2167-065X.1000115>
6. Rath, S., & Padhy, R. N. (2015). Antibiofilm activity of serratiopeptidase: A promising adjunct to antimicrobial therapy. *Journal of Pharmacy and Pharmacology*, 67(5), 677–687. <https://doi.org/10.1111/jphp.12344>
7. Jadhav, P. B., & Shah, J. (2020). Anti-inflammatory and analgesic effects of serratiopeptidase in arthritis: A randomized controlled trial. *Indian Journal of Medical Research*, 152(3), 250–258. https://doi.org/10.4103/ijmr.IJMR_1168_19