

**Title:      HYALURONIDASE      CHARACTERIZATION      PRODUCED      IN  
MICROORGANISMS ISOLATED OF TARANTULAS**

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**Abstract:**

The Hyaluronidase enzyme belongs to the group responsible for catalyzing the degradation of hyaluronic acid, being produced by different living beings, among which the bacteria. The reversible hyaluronidase acts on hyaluronic acid depolymerization of the existing extracellular matrix, which in turn has the property of maintaining cell adhesion, because this compound is highly viscous, acting as an excellent protective and lubricant, there may be many applications for this enzyme, and biotechnological applications in different medical specialties, decreasing the discomfort of subcutaneous or intramuscular injection liquid, it accelerates the diffusion and absorption of fluid, among others. The objective of this study was to characterize the production of the hyaluronidase enzyme in 50 bacteria isolated from tarantulas species, *Avicularia avicularia* and *Maraca horrida*. The isolated bacteria were inoculated into Minimal broth (M9) supplemented with hyaluronic acid, and from the metabolic liquid extraction was performed enzymatic assay. The reaction was stopped by adding NaOH 2.5% CTAB, and the resulting turbidity was read at 400nm in a microplate reader. The quantification of the enzyme produced by each organism (U/ml) was obtained by Formula  $A(activity) = (\Delta abs \times V_T) / (\Delta T \times \epsilon \times V)$ . It was found that the 50 bacteria tested, 40 (90%) strains produced hyaluronidase, and 23 (46%) were isolated from *A. avicularia* and 17 (34%) were isolated from *M. horrida*. In terms of location, it was found that *A. avicularia* presented 11 (22%) bacteria in the outer region, with an average production of 4,51U/mL and 1 (2%), 10,92U/ml, while *M. horrida* showed in the inner region 8 (16%) bacteria in the oral region, producing 4,89U/mL and 4 (8%) in the anal region, producing an average of 2,34U/mL. The relationship between microbial isolates from animals and the production of hyaluronidase is still unclear, however, it is worth noting that in pathogenic microorganisms hyaluronidase has its role as a major factor in the first stage of infection, it helps to establish the tissue. Thus it can be inferred that tarantulas, *Avicularia avicularia* and *Maraca horrida*, harbor bacteria producing enzymes belonging to the group of hyaluronidases, and these bacteria inhabiting the outer regions of these species of spiders to produce this enzyme, potentiate the action of the poison.

**KEYWORDS:** Microbiology; Enzymology; Hyaluronidase; Mygalomorphae.

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