## Insights in Aquaculture and Biotechnology



# Molecular characterization and identification of C-type lectin (CTL) in red palm weevil, *Rhynchophorus ferrugineus* Oliver

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### ABSTRACT:

Insect's innate immunity depends on a variety of defense responses for the recognition of invading pathogens. Pathogen recognition involves particular proteins known as pattern recognition receptors (PRRs). These PRRs interact with pathogen-associated molecular patterns (PAMPs) present on the surface of pathogens to distinguish between self and nonself. C-type lectins (CTLs) belong to a superfamily of PPRs which involved in insect immunity and defense mechanism. *Rhvnchophorus ferrugineus* Olivier is a devastating pest of Palm cultivations in China. Although studies on *R. ferrugineus* immune mechanism and host defense have conducted, however, the role of CTL in immune responses of *R*. *ferrugineus* remains elusive. Here, we report *RfCTL*, which is a secreted protein containing a single-CRD domain. The open reading frame (ORF) of CTL is 226 bp, which encodes a putative protein of 168 amino acids. Transcript expression analysis revealed that *RfCTL* highly expressed in immunerelated tissues, i.e., hemolymph and fat body. The abundance of *RfCTL* in the gut and fat body dramatically increased upon Staphylococcus aureus and Escherichia coli bacterial challenges, suggesting a role in defense against gram-positive and gram-negative bacterial infection. Taken together, we inferred that *RfCTL* might be involved in the immune defense of *R. ferrugineus* and established a solid foundation for future studies on *R. ferrugineus* CTL domain proteins for better understanding of insect immunity.

#### Biography:

Hafiza Javaria Ashraf has doing her PhD at the age of 27 years from Fujian Agriculture and Forestry University. She has published more than 10 papers in reputed journals.



- 1. First Record of *Erysiphe quercicola* on *Murraya* paniculata (Orange Jasmine) in China
- 2. Efficacy of different plant extracts against *Brevicoryne brassicae* and their effects on pollinators
- **3.** Effects of Seedling Age on Colonization Patterns of *Citrus limon* Plants by Endophytic *Beauveria bassiana* and *Metarhizium anisopliae* and Their Influence on Seedlings Growth
- 4. Saponins as possible factors of resistance of legume seeds to the attack of insects
- **5.** Reduced root secretion of valine in Rosa-microbe interaction contributes to the decreased colonization of pathogenic

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