

**IDENTIFICATION AND CHARACTERIZATION OF ODORANT DEGRADING
ENZYMES ENCODING GENES IN *GLOSSINA MORSITANS MORSITANS*.**

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Abstract

The metabolism of volatile signal molecules by odorant degrading enzymes (ODEs) is critical to the sensitivity and specificity of chemoreceptors in various tropical insects. Scientists' knowledge of molecular basis of odorant reception in different insect species has grown exponentially over the years. Some esterases, cytochrome p450s, glutathione S-transferases and UDP-glycosyltransferases are some of the odorant degrading enzymes that have been studied in various insects such as the male silk moth. Major progress has been made in characterizing ODEs in dipteran species such as *D.melanogaster* but little is known about *G. m. morsitans*, a major insect model in sub Saharan Africa.

Tsetse fly (*Glossina* spp.), being the sole cyclical vectors of African trypanosomes, causes sleeping sickness and nagana in humans and animals respectively in many parts of sub-Saharan Africa .

With this regard, scientists have found it necessary to study the insect to be able to fully understand how they degrade odor from different environments. Although identification and characterization of specific enzymes in the enzyme families specialized in odorant degradation is challenging, because of the diversity of detoxification enzymes in each species and various possible functions they participate in, this study aims to address the aforementioned challenge and also determine the evolutionary relationships with *Drosophila melanogaster*.

The findings obtained from these studies will help us understand how the tsetse flies degrade odor in different environments and hence enable scientists' devise methods of controlling their spread.

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