

7. SIGNIFICANT FINDINGS

- The presence of *Spodoptera frugiperda* Smith, the fall armyworm, in many agricultural fields in Vadodara has been noted.
- The fall armyworm was observed to be causing heavy damage to the maize field in Vadodara. The larva (caterpillar) of fall armyworm has been damaging the leaves, cobs, tassels through their feeding.
- The differential gene expression showed 464 upregulated genes and 607 downregulated genes.
- Among other groups, genes involved in structural formation and detoxification were found to be upregulated.
- Various GSTs, cytochromes, esterases, and transferases play roles in detoxification. Cuticle and chitin proteins performing structural formation were also found to be differentially expressed.
- The importance of cytochromes, glutathione S-transferase 1, acetylcholinesterase, glyoxylate/hydroxypyruvate reductase, juvenile hormone esterase, and many others was confirmed to provide resistance in the insect fall armyworm against Enamectin Benzoate.