

# EXPRESSION OF PARALYTIC PEPTIDE BINDING PROTEIN (PP-BP) GENE DURING INDUCTION OF EGG DIAPAUSE AND ITS MULTI-GENE ORGANIZATION IN SILKWORM *BOMBYX MORI*

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## ABSTRACT

The gene expression levels of paralytic peptide (PP) and paralytic peptide binding proteins (PP-BP) were compared in diapausing and non-diapausing eggs of silkworm, *Bombyx mori* L. The role of PP as well as PP-BP in diapause induction in polyvoltine silkworms was also investigated and the multigene organization of PP-BP in the *B. mori* genome was analysed. PP-BP are 30KP proteins with similarity to ENF binding proteins, the multifunctional insect cytokines. Microarray analysis was attempted to compare the gene expression at different time intervals. Results indicated up regulation of PP at 18 h and PP-BP at 12 and 18 h after oviposition along with a few other genes. The silkworm tissue specific expression analysis revealed high expression of PP-BP in fat body followed by egg and brain while no expression was observed in midgut. Realtime PCR results revealed that PP is highly expressed at 18 and 24 H while PP-BP expression is high at 12 and 18 h suggesting their possible role in diapause induction. The whole genome survey of the PP-BP paralogues sequences revealed a total possible role in diapause induction. The whole genome survey of the PP-BP paralogues sequences revealed a total of 46 *B. mori* PP-BP homologs classified into 3 categories viz., ENF-BP, typical 30KPs and serin/threonine rich 30 KPs. These paralogous sequences are distributed on chromosomes 7, 20, 22 and 24 with all 30 KP and S/T rich KP proteins present in the same locus on chromosome 20.

**Key words:** *Bombyx mori*, diapause, gene expression, PP, PP-BP.