



TRANSKINGDOM RNA INTERFERENCE APPROACH TO IMPROVE RESISTANCE AGAINST GRASSERIE DISEASE IN *BOMBYX MORI* L. - A REVIEW

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ABSTRACT

Bombyx mori L. (Lepidoptera: Bombycidae) nucleopolyhedrosis virus (BmNPV) is a highly pathogenic virus encountered in the sericultural industry, often causing severe damage which hampers silk cocoon production in tropical countries. Effective management of the virus has been a challenge because of its sturdy nature and the lack of control strategies. RNA mediated silencing technology has become present day's tool of choice for induction of virus resistance in most of the higher animal systems. In this context, a new approach, known as transkingdom RNA interference (tkRNAi), was discovered where *E. coli* are engineered to transcribe short RNA (shRNA) from a plasmid known as transkingdom RNA interference plasmid (TRIP). The TRIP plasmid / vector contains gene of interest under the control of T7 promoter which efficiently produces dsRNA in *E. coli* host cells, and the vector also contains genes that are responsible for stable and efficient attachment and release of shRNA inside the target cells to bring about stable and consistent gene silencing in the respective host system. This technology is rapidly becoming an important method for analyzing gene functions and is therefore, currently the most widely used gene-silencing technique in functional genomics.

Key words: *Bombyx mori*, nucleopolyhedrosis virus, RNA interference, transkingdom RNAi.