Click www.researchjournal.co.in/online/subdetail.html to purchase.

International Journal of Agricultural Sciences
Volume 21 | Issue 2 | June, 2025 | 369-378 ■ ISSN : 0973-130X
DOI:10.15740/HAS/IJAS/21.2/369-378
Visit us : www.researchjournal.co.in

A REVIEW

Integrated management of silkworm (*Bombyx mori* L.) Diseases: A review of etiology, diagnosis and control strategies

Ravi Kant[1], Muzamil Fayaz Rather*, M. Poojith Kumar Reddy[2], Moparthi Ramya Sree[2], Harshith Gowda T.P.[2] Thamizharasu T.[2], Srikanth P.[2] **and** C. Manoj[2]
Department of Sericulture, Poonch Campus, University of Jammu (J.&K.) India
(Email : rafanrahil9@gmail.com)

Abstract : Sericulture is a labour-intensive, low-input agro-based enterprise that supports the livelihoods of millions of smallholders across Asia. Its productivity, however, is consistently affected by infectious diseases of the mulberry silkworm, *Bombyx mori* L. Four disease complexes account for much of the disease burden in commercial rearing: grasserie (nuclear polyhedrosis), caused by *Bombyx mori* nucleopolyhedrovirus (BmNPV); flacherie, a bacterial and non-occluded viral disease complex; muscardine, caused by the entomopathogenic fungus Beauveria bassiana; and pebrine, caused by the microsporidian Nosema bombycis. Domestication and breeding for production traits have also reduced the breadth of natural resistance, and no commercially reared breed is completely resistant to all four diseases (Hu *et al.,* 2023). This review examines integrated disease management (IDM) in sericulture, beginning with established measures such as disinfection, bed disinfectants, rearing hygiene and disease-free layings, and then considers developments reported mainly from 2019 to 2026. These include loop-mediated isothermal amplification and CRISPR/Cas-based approaches for pebrine detection, molecular and genome-editing approaches to BmNPV resistance, gut-microbiome research and probiotic interventions for flacherie, and studies relating climatic conditions to seasonal disease incidence. The review also considers where the evidence remains inconsistent. Bed-disinfectant trials, for example, do not produce the same ranking of products across locations and hybrids, while molecular pebrine diagnostics have not yet displaced microscopy in statutory quarantine. Other gaps include the limited number of standardised multi-location trials, weak integration of climate information into disease forecasting, the poorly studied risk of antimicrobial resistance associated with antibiotic use, and limited research on why farmers do not consistently adopt validated IDM practices. The evidence therefore suggests that disease management needs to move beyond isolated disinfection measures towards an integrated approach combining reliable diagnosis, host and microbiome interventions, improved breeding, environmental management and farmer-oriented extension.

Key Words : Bombyx mori, Grasserie, Flacherie, Muscardine, Pebrine, Integrated disease management, Biosecurity, Sericulture, Bed disinfectant

View Point Article : Kant, Ravi, Rather, Muzamil Fayaz, Poojith Kumar Reddy, M., Sree, Moparthi Ramya, Harshith Gowda, T.P., Thamizharasu, T., Srikanth, P. and Manoj, C. (2025). Integrated management of silkworm (*Bombyx mori* L.) Diseases: A review of etiology, diagnosis and control strategies. *Internat. J. agric. Sci.*, **21** (2) : 369-378, **DOI:10.15740/HAS/IJAS/21.2/369-378.** Copyright@2025: Hind Agri-Horticultural Society.

Article History : Received : 25.04.2025**; Accepted :** 16.05.2025

***Author for correspondence:**
[1]Faculty of Agriculture, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shalimar, Srinagar (J.&K.) India
[2]College of Temperate Sericulture, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shalimar, Srinagar (J.&K.) India