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Decoding Host-Microbe Crosstalk: Novel Trends in Bombyx mori Gut Microbiota and Insect Immunity.

The silkworm, Bombyx mori, is a model organism of significant economic and scientific importance, particularly in sericulture and biological research. The gut microbiota of Bombyx mori plays a crucial role in host physiology, nutrition, and immunity, yet its diversity and functional significance remain unexplored. This project investigates the gut microbial diversity in Bombyx mori. The study also examines variations in microbial composition across developmental stages and their potential associations with host health and metabolism.

Gut samples were collected from Bombyx mori at different developmental stages, and microbial communities were isolated using culture-dependent methods. Selective media and anaerobic conditions were employed to cultivate a wide range of bacteria. Molecular characterization, including 16s rRNA gene sequencing followed by bioinformatics analysis using Basic Local Alignment Sequence Tools (BLAST) was performed to identify the microbial taxa.

Results indicated a diverse and dynamic gut microbial community in Bombyx mori, with distinct shifts in microbial populations during different life stages. This research provides valuable insights into the symbiotic relationships between Bombyx mori and its gut microbiota, contributing to a deeper understanding of host-microbe interactions in insects. The analysis might contribute in optimizing silkworm health and yield in sericulture techniques.

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