

# Impact of Botanical Extracts on Histopathology of Midgut of CSR2 Race of Mulberry Silkworm (*Bombyx Mori L.*) Inoculated by *Staphylococcus Aureus*

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**Abstract:** *In the present study changes in midgut epithelium of 5<sup>th</sup> day of 5<sup>th</sup> instar silkworm race CSR2 infected with a gram-positive bacteria *Styphalococcus aureus* and plant extract treated group and control group were studied. Large numbers of newly developed cells appeared in the bacteria infected part of the midgut epithelium. After inoculation, and along with their development, the bacteria old columnar cells were discharged into the midgut lumen during development. On the other hand, in the uninfected portion of the midgut only a few cells developed, and no columnar cells were discharged. Similarly, the marked replacement of midgut epithelial cells during larval development were also observed in larvae treated by plant extract. In the larvae infected with *S.aureus*, the columnar cells lost their regenerative ability, and because of the exfoliation of infected columnar cells, the midgut epithelium consisted mainly of uninfected goblet cells at a late stage of infection. The degree of epithelial regeneration varied with the silkworm strain and the dosage of the bacteria.*

**Keywords:** Plant Extract, *Staphylococcus aureus*, Midgut, Goblet Cell, etc.

## REFERENCES

- [1] Angust, A. and Heimpel, A. (1956). An effect of *Bacillus sotto* on the larvae of *Bombyx mori*. *Cand. Entomol.*, 88: 138-139.
- [2] Chisti, M. Z., Shof, K. A. and Khan, M. A. (1991). Occurrence of bacterial disease (Flacherie) of silkworm, *Bombyx mori* in Jammu and Kashmir state. *Indian J. Seric.*, 30(2): 54-55.
- [3] Govindon, R. and Devaiah, M. C. (1995). Bacterial flacherie of silkworm, *Silkworm Pathology Technical Bulletin.*, 3: 1-169.
- [4] Hartman, E. (1931). A Flacherie disease of silkworm caused by *Bacillus bombysepticus* Lignan. *Science journal.*, 10: 279-289.
- [5] Humason GL. *Animal tissue technique* (3rd ed.) W.H. Freeman and Co. San Francisco and London, 1962.
- [6] Inoue, H., Miyagawa, M. (1978). Regeneration of midgut epithelial cells in the silkworm, *Bombyx mori L.* infected with viruses. *J. invertebr. Pathol.*, 32: 373-380.
- [7] Jhanshi Lkshmi, (2003). Ultrastructural studies on tissues of the silkworm, *Bombyx mori L.* infected with *B. bassiana* (Balsamo) Vuilemin. Thesis submitted to Padmavati Mahila Vishwavidyalayam, Tirupati, India.
- [8] Mathavan, S., Sudha, P. M. and Muthu, S. P. (1991). Histological and histopathological studies on midgut epithelium of *Bombyx mori* larvae affected by *Bacillus sphaericus*. *Seric.*, 31(3): 403-411.
- [9] Percy J, Fast GP. *Bacillus thuringiensis* crystal toxin. Ultrastructural studies of its effect on silkworm midgut cells. *Journal Invertebrate Pathology.* 1983; 41:86-98.