

## **SCANNING ELECTRON MICROSCOPIC STUDIES ON THE MOUTH PARTS OF SILKWORM, *BOMBYX MORI* L. DEVELOPED ON ARTIFICIAL DIET**

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### **ABSTRACT**

Silkworms fed on artificial diet with well balanced ingredients can meet the specific requirements of early instar growth leading to a stable and healthy population of late instar larvae. But rearing young instar silkworms on artificial diet may pose a challenge on their behavioural and physiological aspects because any deviation from the natural course of events may act as a stress factor. Under a very systematically planned experiment, efforts were made to improve the feeding preference of selective bivoltine and multivoltine pure strains to artificial diet so that their hybrids can be reared commercially utilizing the technology. The feeding response of the races was improved over the generations through directional selection and stabilized along with other traits of economic importance. The present investigation was undertaken to ascertain whether the adaptation in the feeding behavior of the silkworms over the generations impacted the mouth parts development triggering a transformation to suit feeding on artificial diet. In order to visualize the morphological differences if any in the sensory organs in the mouth parts, the head capsules of artificial diet fed and the regular leaf fed silkworm larvae were observed under Scanning Electron Microscope. A close examination of the antennae, maxillae and the epipharynx which are the crucial organs of gustatory and olfactory senses contributing to host discrimination and food acceptance, revealed no structural changes between diet fed and leaf fed larvae. It is inferred that since the artificial diet contained mulberry leaf powder as an ingredient of natural attractants and as its texture was also taken care to be on par with that of the mulberry leaf, it does not demand any structural alteration in the feeding organs.

**Key words:** Artificial diet, feeding response, mouth parts, silkworm.