Work Plan & Methodology:

The disease free layings (DFL) of polyvoltine, crossbreed race [PM x CSR₂] will be procured through Agriculture Development Trust, Baramati. They will be processed for incubation; transfer of larvae on rearing bed through brushing, feeding the larval instars with appropriate amount of mulberry leaves, provision of mountage for spinning larvae, harvesting the cocoons, reeling the cocoons & characterization of silk filament. The well established method of rearing the larval instars by Krishnaswami, et al. (1978) will be followed. Through the use of fifth instar larvae, body wall (integument), the chitin will be estimated volumetrically. Tender stem pieces of selected plants like: *Vitis vinifera* (L); *Alstonia scholaris* (L); *Santalum album* (L) & *Tectona grandis* (L); *Lantana camera* (L) and *Syzigium cumini* (L) will be collected, shade dried, powdered & subjected for soxhlet extraction through the use of acetone as solvent. In the very first phase, 10 ppm solution of each extractive is going to be prepared through the use of acetone as solvent. Ten microlitres of acetone solution (10ppm) of each plant extractive will be used for topical application on the dorsal surface of fifth instar larvae of silk worm, *Bombyx mori* (L) at 48 hours after the fourth moult. The larvae will be reared following usual schedule. Through the use of body wall (Integument) chitin will be estimated volumetrically on fifth day (120 hours after the fourth moult).

This may give idea regarding the effects of plant extractives on the pattern of deposition of chitin in the body wall (integument) of the fifth instar larvae. These results will be used for establishing range of serial dilution of individual plant extractive. In the next phase, the serially diluted each plant extractive will be used for topical application to the fifth instar larvae. And this will be followed by chitin estimation. This phase of the study may give idea regarding the relationship established by the concentration of individual extractive with change in the pattern of chitin deposition in the body wall (integument) of larval instars and to select the particular concentration of each plant extractive responsible for favorable for appropriate chitin deposition and ofcourse, for normal growth and development of larval instars of silk worm, *Bombyx mori* (L). The selected concentration of acetone extractives of each plant is going to be used on the following parameters in the fifth instar larvae of silk worm *Bombyx mori* (L) [Race: PM x CSR₂]:

1) Body wall chitin deposition.
2) Finding ID50 values for each extractive.

3) On consumption & utilization of mulberry leaves.

4) On parameters of larva (Like: larval duration, larval weight of silk gland, & Tissue somatic Index of silk gland).

5) On the parameters of cocoon and silk filament.

6) On the protein contents of fifth in star larvae.