

BIOLOGY OF SILKWORM

Q.What is larva of silkworm called? Q.Which stage of silkworm produces silk? Q.How many stages are there in life cycle of silk worm? What is the life cycle of Bombyx mori? Q.How many instars are formed in life cycle of Bombyx mori?Q.Which stage in the life cycle of a silkworm is the most important? Q.How many stages are present in life cycle of silk moth?

Life cycle stages	Features
Eggs	<p>i.Inseminated female lays all her eggs (400-500 eggs)in 24 hours in masses glued by an adhesive secreted from mother anal region on under surface of mulberry leaves.</p> <p>ii.Browinsh-white eggs are seed like small pin head, covered by a chitinous egg-shell.</p> <p>iii.Types of eggs: Diapause (development is suspended in winter-usually laid in temperate zone) and Non-Diapause (eggs laid in tropical/ subtropical areas).</p> <p>iv.Hatching time- in 8-12 days into larva/ caterpillar.</p>
Caterpillars	<p>Duration: 28-30days</p> <p>i.Completed in 5 instar stage with a body weight of (4-6)gm.</p> <p>ii.3.5mm long (just hatched larva) and 7.5cm long (full grown larva)</p> <p>iii.Long cylindrical body with 12 segments and mouth part is mandibular type.</p> <p>iv.Body invested with fine hairy process and abdomen has 5 pairs of pesudolegs.</p> <p>v.An anal horn is present in last abdominal segment.</p> <p>v.Feeding habit- Voracious feeder on tender leaves of mulberry plant upto 4th instar.</p> <p>vi.Metamorphosis:Completes through 4 moultings. As follows—</p> <p>1st instar larve- lasts for 3-4 days; 3mm long; 5mg weight; relatively large head; dark colour.</p> <p>2nd instar larva-Whitish colour due to urate deposition in skin; voracious feeder; lasts for 2-3 days and then moults into 3rd instar larva.</p> <p>3rd instar larva-Voracious feeder; lasts for 3-4 days and then moults.</p> <p>4th instar larva-Moults after lasting 5-6 days and voracious feeder.</p> <p>5th instar larva-Feeds for 6-8 days and then cease feeding, develops a fully formed silk gland located ventrolateral to the gut and lasts for ~ 2 weeks.</p>
Pupa	<p>Duration:10-12 days</p> <p>i.Full grown, nonfeeding 5th instar larva starts silk secretion which incontact with air hardens as continuous thread.</p> <p>ii.The larva by its spinneret spins the silk thread around its body through continuous rotating motion @ 65 times per minute.</p> <p>iii.This converts the larva into a cocoon, where the larva is encapsuloated by a silk-capsule, within which the larva pupate.</p> <p>iv.White and oval shaped pupa completes spinning in 3 days.</p> <p>v.Pupal changes inside the cocoon involves— casting of pseudolegs, development of 2 airs of wings, 3 pairs of thoracic legs, prominent head with antennae and eyes, 10 abdominal segments etc.</p>
Adult/Imago	<p>Duration of life cycle: 6-8 weeks</p> <p>i.Adult moth emerges out the cocoon and secretes an alkaline secretion that moistens the cocoon at a point and then by cutting this side the adult emerges out.</p> <p>ii.Non feeding adult appears sluggish, whitish grey and soft bodied with a size of ~ 2.5cm (long).</p> <p>iii.Male is smaller female and relatively active than female.</p> <p>iv.Copulation-Takes place immediately after emergence. Female attracts the male by transmitting a species specific scent from her scent gland. 3 hours after copulation female starts laying eggs.</p> <p>v.Adult life span is 5-10 days.</p>