The Deceptive Glow
How Glowworms Lure Prey to their Doom

Shabanam Parveen

Image source: Wikipedia

The bioluminescent glow of larvae of *Arachnocampa luminosa*

THE production of light by living organisms is called bioluminescence. Many organisms produce light, such as fireflies, many beetles, jellyfish, and the purpose of the production of light may vary. In here, the glowworms produce light to lure their prey into a sticky snare. But what's even more astonishing is that glowworms aren't worms; they are actually the larval phase of the fungus gnats, which are tiny flies. Deep within the forests of Australia and New Zealand, within the darkness of the cave, glowworms put on a mesmerising light show to seduce their prey. The light show they set up became so attractive that those caves became destinations for tourists.

Glowworms are the larval stage of the fungus gnats of the dipteran family Keroplatidae. The light-producing species found in New Zealand is the *Arachnocampa luminosa,* meaning the "light-producing spider-like larva", owing to the spider-like snares they create. The insect, which is slightly bigger than a mosquito, has most of its lifetime in the larval stage. The larvae (maggots in case of diptera) live for about 9 months, during which they will produce the light snares. The adult stage lasts for only a few days, during which they will mate and die. In its shorter time, the adults don't eat, as the mouth parts are atrophied.

The light is produced by a chemical reaction where luciferase enzyme acts on luciferin in the presence of ATP and oxygen, which takes place in the digestive system of the larvae, specifically in the malpighian tubules, which are equivalent to a human kidney. The light, emitted from the tip of the abdomen, glows with a greenish-blue hue. The larva produce suspended beaded tubes of sticky mucus and silk from the cave ceilings, which it illuminates to attract prey. Tiny midges and other creatures getting attracted to the light get trapped in the mucus threads, which will be eaten by the larva later. As the chemical reaction consumes a lot of oxygen, an air bag is present around the light-producing organ to ensure the availability of oxygen and also to concentrate light. When an insect is caught on the snare, the larva turns out the light and enjoys its meal. All stages of the glowworm