

## **Preliminary Study on carrion frequenting blowflies (Calliphoridae) in three localities in Sri Lanka and their response to formalin treatment**

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It is a known fact that formalin is unwarrantedly used to keep harvested fish longer in fresh condition. In this experiment, it was considered how it affects the natural population of blowflies by adding different concentrations of formalin to fish. Diversity of carrion attracting blowflies and its variation with the time was also quantified. *Sardinella melanura* fish were used. Three different concentrations of formalin (0.1 ppm, 0.01 ppm and 1 ppm) were injected (1.5 mL each) to three fish of same dimensions. The selected concentrations are highly likely to represent the range used by fisherman as 0.1 ppm is considered to be the minimum detectable by human senses. The fish were set in a water bottle bait trap, which were set in two environments (rural and suburban) at mid-elevation (149 m) and in two elevations (mid- and low, 7 m) in suburban environment. Carrion flies were collected daily. They were identified upto species level using pictorial keys, under stereo microscope. A total of 135 blowflies were collected. *Cochliomyia* spp. (Family Calliphoridae) was the most abundant type of carrion attracting blowfly in all three localities. In addition, housefly (Family Muscidae) was found only from the two suburban elevations. Blowfly diversity in the three localities was calculated separately, using Shannon-Wiener Index (H). The highest diversity was observed in low-elevation, suburban environment (H=1.211) followed by mid-elevation, suburban (H=0.889) and mid-elevation, rural environments (H=0.411) respectively. Availability of a source of blowflies in the neighborhood and favorable conditions to complete their life cycle can be reasons for higher diversity in the suburban environment. However, diversity did not vary significantly ( $p=0.05$ ) with concentration of formalin injected, with H ranging from 0.938 to 0.983. Multiple regression analysis showed that the cumulative number of blowflies attracted increased with increasing formalin concentration. This could be due to increased concentration of formalin derived from breakdown of nitrogenous compounds as fish rot, plus the added formalin and genetic adaptation of blowflies. The number of blowflies attracted decreased significantly with increasing days after injection because with time the flesh is decomposed and the compounds which attract blowflies are gradually broken down.

**Keywords:** *Calliphora* spp., *Cochliomyia* spp., fish, diversity, elevation, suburban environment