



Pathology Biology Section – 2006

G71 Intraspecific Competition in the Blowfly *Chrysomya megacephala* (Diptera: Calliphoridae) Reared at Different Densities

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After attending this presentation, attendees will learn the effects of population densities on the rates of development and subsequent effects on the calculations of postmortem interval estimates using entomological techniques.

This presentation will impact the forensic community and/or humanity by demonstrating the calculation of an estimated minimum postmortem interval estimate using entomological techniques depends on correct developmental data for the species involved. Understanding the effects of density and intraspecies competition will serve to gradually increase the accuracy of these estimates.

Larvae of *Chrysomya megacephala* are major factors in the early decomposition of remains in tropical habitats. This study was undertaken to determine the effects of larval density on rate of development, larval and puparial mortality and adult size for this species under laboratory conditions. Larvae were collected from a pig (*Sus scrofa* L.) carcass in a mesophytic habitat on the Island of Oahu, Hawaii. Colonies were established with limited food resource (15 gms of beef liver) at densities of 1:1, 5:1, 10:1, 15:1, and 20:1. All colonies were reared at a constant temperature of 24°C, with light/dark cycles of 13/11 hours. In one section of the study, total lengths of 10 larvae per day were recorded to determine rate of development based on increase in size. In the other section of the study, colonies were left undisturbed for the duration of larval development. Larval mortality and puparial mortality and total mortality were recorded. Of the densities studied, the 10:1 ratio appeared most favorable for development. Larvae reared in these colonies were significantly larger than those in other colonies, reached the puparial stage 24 h ahead of other colonies and had the lowest larval mortality.

Entomology, Competition, Postmortem Interval Estimation