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Authors: L.A. Robinson, D. Bryson, M.T. Bulling, N. Sparks, K.S. Wellard

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Post-feeding activity of *Lucilia sericata* (Diptera: Calliphoridae) on common domestic indoor surfaces and its effect on development

L. A. Robinson[a]*, D. Bryson[a], M. T. Bulling[a], N. Sparks[a] & K. S. Wellard[a]

[a]University of Derby, Forensic Science, Kedleston Road, Derby, DE22 1GB, UK

*corresponding author L.robinson@derby.ac.uk

Highlights

- Post-feeding activity is greater on surfaces which do not permit burial behaviour
- Dispersal in sawdust is similar to that on surfaces that do not permit burial
- Intrapuparial development following dispersal in sawdust is similar to surfaces that allow burial
- An increase in post-feeding activity results in a decrease in puparia length
- Adult fly sizes are not effected by an increase in post-feeding activity

Abstract

Developmental data of forensically important blowflies used by entomologists to estimate minimum post mortem interval (mPMI) are established under controlled laboratory conditions for various temperature ranges throughout the stages of egg, 1st - 3rd instar, puparia, and adult fly emergence. However, environmental conditions may influence the patterns of development and behaviour of blowflies, potentially impacting on these established development rates. Previous studies investigating indoor colonisation have focused on the delay to oviposition, with behaviour during the post-feeding phase in this setting often overlooked. The environment in which third instar larvae disperse when searching for a pupariation site may vary drastically at both outdoor and indoor scenarios, influencing the activity and distance travelled during this phase and possibly affecting developmental rates. This study investigated the effect of eight common domestic indoor surfaces on dispersal time, distance travelled, and behaviour of post-feeding *Lucilia sericata* as well as any resulting variation in development. It was found that pupariation and puparia length within a