Bed Bug Mortality Following Exposure to Ultraviolet Light

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The recent bed bug resurgence has caused the pest control industry to seek novel ways to eradicate this pest. Currently no individual control measure, chemical or otherwise, has proven to be one hundred percent effective. It is necessary, therefore, to develop alternative methods of control to aid in a broader eradication strategy. The present study examines the impact of ultraviolet light on bed bugs at various stages of development. Individuals are placed in titer plate wells and exposed to light generated by a 35 watt UV-C bulb. To ensure direct exposure, the bulb is housed in a specially constructed apparatus which aligns it directly above the specimens. A sliding shield allows for timed exposure. Currently, replicates of eggs and first instar nymphs have been exposed for a period of ten seconds. Greater than 90 percent mortality has been demonstrated in the egg stage. Preliminary results with first instar nymphs were less definitive, but additional replicates are currently being observed. The outlined experimental procedure will be replicated to examine the effects of different exposure times across a broader sample of eggs, nymphal instars, and adults. It is expected that eggs will continue to be the most vulnerable developmental stage. This is significant considering the egg stage is the most difficult to eradicate using conventional pesticides. Thus, initial results of the study are an encouraging indication that UV light could be used to augment current control tactics.