

How to kill bed bugs in portable items: unconventional non-chemical approaches

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The bed bug, *Cimex lectularius* (Hemiptera: Cimicidae), has become a common household pest in the U.S. Bed bug control is very costly and difficult, especially if the infestation is not stopped early on. Bed bugs require multiple integrated pest management (IPM) strategies, and chemicals are not the best option to remove bed bugs from paper products. Due to the high costs of bed bug control, many people resort to do-it-yourself (DIY) methods. The goal of our research was to determine if a household microwave oven could successfully kill all stages of bed bugs and whether this technique was useful to decontaminate sensitive paper items such as books. In the first experiment, bed bugs were individually microwaved for 0 to 31 s (n= 20 individuals per stage/exposure time). Results revealed 100% mortality of first, second, third, fourth, and fifth stage nymphs, and adults after microwave exposures of 31, 22, 22, 17, 21, and 21 s, respectively. In the second experiment, groups of 10 eggs (3 reps) were exposed to microwaves for 0 to 35 sec. No eggs hatched after being exposed to microwaves for 30 s or more. Microwaves can successfully kill all stages of bed bugs, even with brief exposure times. This technique may be used as part of an IPM program to decontaminate sensitive items.