



The Connecticut Agricultural Experiment Station

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PRESS RELEASE

FOR IMMEDIATE RELEASE

Tuesday, March 6, 2018

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KEEPING LUGGAGE FREE FROM BED BUGS

New Haven, CT - Bed bugs are an important health nuisance throughout the United States and can be inadvertently transported back to homes in luggage opened by travelers in hotel and motel rooms infested with bed bugs.

Researchers at The Connecticut Agricultural Experiment Station (CAES) and Bedoukian Research, Inc. of Danbury, CT. evaluated the effectiveness of six naturally occurring or structurally related compounds used in the flavor and fragrance industry, and two commercially available repellents in reducing risk of bed bugs inhabiting luggage.

Chemicals were sprayed directly onto soft-sided lunch bags containing a soiled sock, which simulated luggage containing recently worn clothing, or onto a cloth towel that was placed under an untreated lunch bag.

Testing was performed in a six-foot by six-foot arena where live bed bugs were released and given the opportunity overnight to inhabit and hide in treated or untreated bags or cloths.

They found that these compounds provided relatively long-term protection. Propyl dihydrojasmonate, a synthetically produced molecule similar to materials made by plants, prevented bed bugs from seeking refuge in treated lunch bags for 27 days. Delta dodecalactone, which is used in flavors and fragrances, applied to cloth towels repelled bed bugs for up to 276 days.

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“These materials do not have unpleasant odors and do not react with plastics or synthetic rubber and therefore may be good alternatives to DEET, the most commonly used insect repellent” said Dr. John Anderson, lead author of the study. Furthermore, effectiveness of these compounds tended to last longer than DEET. Additionally, many of these materials have a history of safe use in the flavor or fragrance industry, and all have favorable toxicological profiles.

The authors noted that use of these cost-effective and relatively long-lived repellents would greatly reduce risk of being bitten by bed bugs, reduce their inadvertent transport, and reduce anxiety of travelers staying overnight in hotel rooms.

The authors of this study, John F. Anderson, Francis J. Ferrandino, and Michael P. Vasil of CAES and Robert H. Bedoukian, Marie Maher, and Karen McKenzie of Bedoukian Research, Inc. recently reported their findings in the Journal of Medical Entomology (<https://doi.org/10.1093/jme/tjx253>). For further information, contact John F. Anderson at 203-928-7899 or john.f.anderson@ct.gov or Robert Bedoukian at rhb@bedoukian.com.



Adult female bed bug, Cimex lectularius. Photo Credit: Michael P. Vasil, CAES.



Repellent chemicals were tested using soft-sided lunch bags containing a soiled sock, which simulated luggage with used clothing. Twenty-five bed bugs were placed in the center of the “arena” in late afternoon and their positions recorded the following morning. Both lunch bags are untreated with one resting on a towel treated with a repellent and the other resting on an untreated towel. Photo Credit: Michael P. Vasil, CAES.

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