UC RIVERSIDE | DEPARTMENT OF ENTOMOLOGY

ENTM250 Series Webinar

Speaker:

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Date: Monday, Nov. 15, 2021
Time: 4:00 pm - 4:50 pm
Zoom: 948 0131 1028
Passcode: 347039

Title:

"Wash-off Potential of Pyrethroids after Use of Total Release Fogger Products"

Abstract:

Pyrethroids are frequently detected in urban wastewater. Even though the majority (>90%) of pyrethroids in wastewater are removed by treatment facilities, residual concentrations can exceed thresholds that are acutely toxic to sensitive aquatic species. Total release foggers (also known as "bug bombs") are widely available to the general public for insect control. These products contain pyrethroids as active ingredients to target indoor pests such as flies, bed bugs, fleas, and cockroaches. It was hypothesized that these products serve as a potential source of pyrethroids entering the urban wastewater through the deposition of the active ingredients on various surfaces, and subsequent transfer from the contaminated surfaces to the waste stream through cleaning activities. Based on experiments conducted in an enclosure, we found that substantial amounts of a pyrethroid (i.e., cypermethrin) were deposited on various surfaces after total release fogger use. A series of experiments simulating different scenarios indicated that the pyrethroid can be transferred from the contaminated surfaces to other adsorptive materials via physical contact (with or without water as a solvent). The pyrethroid was readily extracted from the adsorptive materials (cotton fabric and filter paper) when water was used as a solvent. The addition of a small amount of detergent in the water greatly increased the extraction efficiency compared to water alone. These results indicate that insecticides used in total release foggers can contribute to insecticide loading into the wastewater treatment system via several possible routes, such as the contacting with or cleaning of exposed surfaces, and the washing of contaminated clothing after their use within a structure.