

# Taking The Bite Out Of Bed Bugs

The Pennsylvania State University



Bed bugs are insects that feed on blood, usually at night. Their bites can result in a myriad health problems, from skin rashes to blisters and allergic symptoms. They are also stealthy travelers, hitching rides in luggage, purses, backpacks, or other items left on upholstered surfaces.

No doubt you've heard stories from those who've brought home bed bugs from a hotel stay. And then spent thousands of dollars exterminating the pests, commonly using costly thermal remediation.

“*Bed bugs, as it happens, are even harder to eradicate than the common flea, as they can survive for up to 400 days without feeding.*

Driven by the scourge of the bed bug epidemic, Dr. Nina Jenkins, a Research Professor in the Department of Entomology at The Pennsylvania State University and three co-inventors, developed, with the aid of USDA funding, a biopesticide formulation that controls and prevents bed bug infestations. The biopesticide uses a natural fungal

disease of insects that kills bed bugs, but is harmless to humans and pets.

Bed bugs pick up the fungal spores by walking on a treated surface. The technology exploits the natural behavior of bed bugs, which hide in group harborages that are typically inaccessible to pesticides.

How does it work? The fungal spores attach to the exoskeleton of the bed bug, germinate and eventually kill the insect. Exposed bed bugs return to their harborage where they unknowingly share the spores with their nestmates, resulting in eradication of the entire population.

Jenkins worked closely with the Penn State Office of Technology Management to obtain U.S. Patent No. 10,085,436 in October 2018.

“*Penn State’s tech transfer office was the first place I reached out to when we thought we had an interesting discovery.*

Dr. Nina Jenkins

Jenkins added, “Matt Smith, Sr. Technology Licensing Officer at the Office of Technology Management, was quick to understand the technology and its potential, and was an invaluable resource throughout the development and commercialization process. He assisted with selection of appropriate legal representation for preparation of the patent, and provided input and assistance, preparing a fair and reasonable agreement for the licensing of the technology. This is a great example of how the Office of Technology Management works to maximize the commercialisation of research outputs at Penn State.”

It was after winning several innovation contests, that Jenkins and her co-founder, Giovanni Bellicanta, established ConidioTec, LLC, and in July 2014, executed an exclusive licensing agreement with the University’s licensing entity, the Penn State Research Foundation.

Using funds from the College of Agricultural Sciences, Jenkins was able to support US Environmental Protection Agency registration of the product, known as Aprehend®.

Working with pest management professionals, ConidioTec established an effective protocol for use of Aprehend, which reduces the number of spray applications required for bed bug eradication, and reduces the preparation requirements for householders prior to treatment.

ConidioTec launched Aprehend® at the National Pest Management Association PestWorld conference in October 2017. Today it is available to pest management professionals across the U.S. and Canada. For more information, visit [www.aprehend.com](http://www.aprehend.com).

This story was originally published in 2022.

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