



Natural Mosquito Repellents Aren't Automatically Safe

By [Anne Marie Helmenstine, Ph.D.](#), About.com Guide July 9, 2006

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Here's an e-mail I received with important information regarding natural mosquito repellents. My [Natural Mosquito Repellent](#) feature includes a caution about the safety of natural products, but this letter does a great job of explaining the hazards:



Dear Dr. Helmenstine,

In your recent article on natural mosquito repellents, you listed several "natural products" including "citronella oil, rosemary oil, lemongrass oil, cedar oil, peppermint oil, clove oil, geranium oil, and possibly oils from verbena, pennyroyal, lavender, pine, cajeput, cinnamon, basil, thyme, allspice, soybean, and garlic" as alternatives to registered repellents like DEET.

The suggestion that your readers (which includes many with no science background) should apply these chemicals to repel mosquitoes may lead to serious problems. Without explicit instructions, indiscriminate use of home remedies is potentially more harmful than using EPA registered

repellents. At least we know that scientific investigation of potential health risks was done before EPA allowed repellents to be labeled as such.

As a person with a doctorate of philosophy in biomedical sciences, you must certainly be aware that fat soluble chemicals are readily absorbed through unbroken skin. While the amounts vary with the particular compound, indiscriminate application of these oils as "natural" alternatives to EPA registered insect repellents may be more harmful than the commercial products. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), mosquito repellents have gone through rigorous testing before being offered for sale as registered pesticides. The chemicals you listed are exempt (at this time) based on low acute toxicity, but there are other considerations. For example, accidental ingestion of any oil followed by vomiting can cause pneumonitis which is life threatening and difficult to treat. Exempt repellents are not required to be packaged in child-resistant containers, increasing the risk of accidental ingestion. Many household products are not covered by the Poison Prevention Packaging Act. The American Association of Poison Control Centers' "Toxic Exposure Surveillance System" and the National Electronic Injury Surveillance System data show that every year thousands of children are treated for ingesting household chemicals. Possessing and using home remedies which lack child-resistant packaging may be a much greater risk than using DEET or some other registered repellent.

Another type of risk is allergens in naturally occurring compounds. For example, it is thought that some pyrethrum derivatives are thought to contain allergens that may trigger asthma attacks.

The following two paragraphs appeared in Environmental Health Perspectives (EHP), the peer-reviewed journal of the United States' National Institute of Environmental Health Sciences.
(<http://www.ehponline.org/docs/1995/103-6/focus.html>)

"Pyrethrins are the collective name for a group of six pesticidal compounds derived from pyrethrum flowers in the genus Chrysanthemum. Pyrethrum flowers and refined pyrethrin extracts with varying amounts of floral impurities, some of which are allergens, have been used in pest control for several centuries. Though pyrethrum extracts are relatively low in terms of acute toxicity, there is concern that pyrethrins and their synthetic counterparts, pyrethroids, can trigger allergic reactions, particularly among the nation's estimated 15 million persons with asthma...."

"Several derivatives of natural pyrethrin molecules, known as synthetic pyrethroids, are also widely used household pesticides and are suspected to be allergens. Some of these include tetramethrin, resmethrin, and allethrin, cumulatively found in over 30 million households. Thus,

pyrethrin and pyrethroid products may need to be labeled with bronchospasm warnings for asthmatics."

(EHP is an important vehicle for the dissemination of environmental health information and research findings. EHP's mission is to serve as a forum for the discussion of the interrelationships between the environment and human health by publishing in a balanced and objective manner the best peer-reviewed research and most current and credible news of the field.)

Sincerely,
Robert Stone
Albuquerque, NM