Natural Tick Repellents and Pesticides

Overview

Although tick repellents and pesticides for use on skin, clothing, or in the yard are considered safe and effective when used as directed, many people are reluctant to use them. In order to provide other options, scientists have been developing all-natural chemical compounds made from plants that can repel or kill ticks. Scientists have also studied the use of fungi to kill ticks. Many natural products that come from plants or fungi and repel or kill ticks are described below.

EPA Registration

Before insect repellents can be sold to the public, most must be registered by the Environmental Protection Agency (EPA). EPA registration means that a product has been evaluated and approved as safe and effective for people to use on their skin when applied according to label instructions. Any EPA-registered product will have an EPA Registration Number on the product label (for example, 123456-1).

Some insect repellent products for sale in the United States do not currently require EPA registration. In the 1990s, EPA evaluated the active ingredients in these unregistered products for safety (but not effectiveness). EPA determined that these all natural plant oils (like peppermint, thyme, eucalyptus, garlic, etc.) used in insect repellent products were safe for people and posed minimal risk to human health. EPA determined that products made from these all-natural ingredients do not require registration. Note that products made from these ingredients have not been evaluated by EPA for effectiveness.

For more information, see EPA’s Regulation of Skin-Applied Repellents (http://www2.epa.gov/insect-repellents/regulation-skin-applied-repellents)

Natural Compound-based Products that Repel or Kill Ticks

Active ingredient: 2-undecanone

EPA-registered: Yes

Natural source: Essential oil from leaves and stems of the wild tomato plant, Lycopersicon hirsutum

Repels: Ticks (including the blacklegged tick and the lone star tick)

For use on: Skin, clothing, gear

Commercially available: Yes

References:

assays and the comparative repellency of BioUD, DEET, and permethrin against *Amblyomma americanum*.


Active ingredient: Garlic Oil

**EPA-registered:** Exempt

**Natural source:** Essential oil from garlic plants

**Repels:** Ticks (blacklegged tick)

**For use on:** Lawns and gardens

**Commercially available:** Yes

**Reference:**


Active ingredient: Mixed Essential Oils (rosemary, lemongrass, cedar, peppermint, thyme, and geraniol)

**EPA-registered:** Exempt

**Natural source:** Essential oils from rosemary, lemongrass, thyme, and geraniol plants

**Repels:** Ticks (blacklegged tick)

**For use on:** For use on skin, lawns, and gardens

**Commercially available:** Yes

**References:**


Bioactive natural product - Nootkatone

Active ingredient: Nootkatone

EPA-registered: EPA registration filed and under review

Natural source: Essential oils from Alaska yellow cedar trees, some herbs, and citrus fruits

Kills and repels: Ticks (blacklegged tick) and other arthropods

For use on: For use on skin, lawns, and gardens

Commercially available: No

References:


Biological Agent-based Products that Repel or Kill Ticks
Active ingredient: Fungus (*Metarhizium brunneum/anisopliae*)

**EPA-registered:** Yes

**Natural source:** These fungi grow naturally in soils throughout the world

**Kills:** Ticks (blacklegged tick), thrips, whiteflies, mites, and weevils

**For use on:** For use on lawns and gardens

**Commercially available:** Yes

**References:**