

What's the Scoop on Insect Repellents?

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This article appeared in the July 2002 NEBLINE Newsletter

With the recent rains, many people are concerned about mosquito bites and the possibility of contracting the West Nile Virus. One way to reduce the likelihood of getting bitten is to use an insect repellent when spending time outdoors in mosquito-infested areas. The following information may help you decide about what repellents will be effective.

DEET. Right now, the most effective insect repellent on the market is still DEET, diethyltoluamide, a chemical developed in the 40's for the U.S. Army. Products containing DEET have been available to the general public since 1957. Depending on the situation, DEET provides 2-8 hours of protection. It has broad spectrum activity and is effective against mosquitoes, biting flies, midges, chigger, fleas and ticks.

Millions of people have used DEET since it was developed and is generally considered safe when used properly. Make sure to use products that were made after 1993, because some earlier products contain an adhesive that has raised some concern.

For casual use, a product containing 10-30 percent DEET should be adequate. For children, it is best to be conservative and keep the concentration of DEET at 10 percent or less. In many situations, it may make sense to spray clothing, but be aware that DEET can damage plastics, leather, and synthetic fabrics like rayon.

High temperatures and humidity reduce the length of effectiveness. In such a situation, it may be necessary to apply the repellent more often or use a slightly stronger concentration.

Citronella. Derived from a lemon-scented grass and found in oils, sprays and candles, citronella is a common ingredient in many repellents. Studies have shown that citronella oil protects against most mosquito bites during the first 30-40 minutes after application, but its effectiveness diminishes quickly and is gone in two hours.

IR3535. This repellent (3-[N-butyl-N-acetyl]-aminopropionic acid) is the most recently marketed chemical repellent in the U.S. It is available exclusively through the Avon Corporation as Skin-So-Soft Bug Guard Plus IR3535. It is labeled for use against mosquitoes, ticks and biting flies. In some studies IR3535 provided protection for 4-6 hours, but another study performed at USDA laboratories found that 25% IR3535 was 10-100 times less effective than DEET.

Skin-So-Soft bath oil. Made by Avon, this oil has been shown in laboratory tests to have a minimal repellent effect. By comparison, 12.5 percent DEET provided protection from bites for 10 times longer.

Soybean Oil, Geranium oil and Coconut oil. These oils have been formulated into a product called

Blocker which has been available in the U.S. since 1997 This “natural” repellent worked much better than citronella-based repellents. In some studies, Blocker provided complete protection against mosquito bites for as long as 3.5 hours.

FUTURE REPELLENTS

Piperdine. The USDA Agricultural Research Service is looking at this molecule which has repellent properties and is found in trace amounts in black pepper. Advantage to piperdine-based repellents is that they won’t dissolve plastics, such as sunglass lenses or auto paint.

Catnip. Researchers at Iowa State University have found that nepetalactone, an essential aromatic oil in catnip, is about ten times more effective at repelling mosquitoes than DEET — the compound used in most commercial insect repellents. A patent application for the use of catnip compounds as insect repellents was submitted last year by the Iowa State University Research Foundation. Don’t expect this to be commercially available anytime soon, as it has yet to be analyzed by the US-EPA or tested by human subjects.

Tomato. A North Carolina State University entomology researcher has reported that a component of tomatoes, called IBI-246, has shown itself to be more effective than DEET and is safer. It repels mosquitoes, ticks, biting flies and even cockroaches. A company called Insect Biotechnology has purchased an exclusive license from NCSU to develop the product. It has been tested on humans with no adverse side effects, but it still has to be approved by the EPA before it can be marketed.

This information is valid for southeastern Nebraska. It may or may not apply in your area. Contact your local Cooperative Extension office for more information and resources.

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