

DEET versus Permethrin as a Tick Repellent

By Tom Grier

Springtime is tick time. This means we will soon be seeing those cautionary ads on television telling us to use tick repellents. In almost every instance, the active ingredient in those advertised tick repellents will be DEET, which is the active ingredient in most mosquito repellents.

DEET is an excellent mosquito repellent, but it is a fairly poor tick repellent. We are inundated with so many DEET repellents because there are several huge corporations that manufacture hundreds of variations of DEET products. There is only one small company, Coulston Laboratory, that markets a handful of competitive tick repellent products for human use that contain 0.5 % permethrin.

There are pros and cons to each product, but as a tick repellent, permethrin wins hands down. Permethrin is an insecticide derived from a chemical found in the chrysanthemum family of plants. It is a spray that is used on clothes only, and is deactivated and made less effective by the oils on our skin. Once it is sprayed on our clothing, it becomes odorless and can last for several weeks with a single application. Once it is applied, most ticks will curl up and fall off if they make contact, and will eventually die if there is prolonged exposure.

Both DEET and permethrin have come under criticism for possible human side effects. DEET has been associated with human case histories of neurological damage and even death, and products greater than 40% were restricted in some states. Permethrin has been implicated in possibly contributing to the Gulf War syndrome. However, the studies involved mixing permethrin with DEET and applying it directly to the skin of mice that were then given military vaccines.

Pros and Cons:

- DEET needs to be applied regularly and can only work as it is evaporating. Permethrin works for weeks after it has dried inside clothing fibers.
- DEET is applied directly to the skin and can be absorbed through the skin. Permethrin is applied to clothing only and has limited contact to the skin.
- DEET has a detectable odor. Permethrin smells only until it dries.
- DEET does not kill or disable ticks and is a poor repellent. Permethrin works instantly and is extremely effective. It is the tick repellent of choice by the military.
- DEET can melt synthetic clothes like nylon. Permethrin causes no damage to any known cloth or synthetic fiber.
- DEET products are easy to find. Permethrin is hard to find and more expensive.
- DEET is an effective fish repellent. ~~Permethrin's effect on fish is unknown.~~ (Permethrin is actually known to be very toxic to fish! - LNE editor)

Permethrin-containing products that are approved for human use are manufactured by Coulston labs, and can be found under labels such as Duranon, Permanone, and Congo Creek Tick Spray. A 0.5 % veterinary permethrin product can be found in most feed stores and horse supply shops as a horse tick repellent. The veterinary products tend to cost about half the price per ounce as the human-use product.

The Minnesota Insect-Borne Disease Education Council conducted a field test in Jay Cook State Park in northern Minnesota, and found that the permethrin products outperformed the DEET-containing tick repellents. A shoe was sprayed with Duranon (0.5% permethrin). Three weeks later, it was tested against a recently sprayed shoe using Deep Woods Off (35 % DEET). Ticks that made contact with the Duranon-sprayed shoe immediately rolled up and dropped off. Ticks on the soaking-wet DEET saturated shoe continued to crawl unimpaired.

One last tip for you fishermen out there: DEET is perhaps one of the most effective fish repellents known to man. Just a few parts per

million can send game fish like salmon and trout to the other end of the fish tank. If you like to keep mosquito repellent in your tackle box, you may have unknowingly contaminated all of your fishing lures! Be sure to take care not to handle any fishing tackle once you have applied mosquito repellent. Just a few parts-per-million can repel more fish than mosquitoes!

To avoid ticks:

- Wear light-colored clothing.
- Tuck your pants into your socks.
- Tuck your shirt into your pants.
- Wear a hat.
- Spray your shoes, socks, belt-line, collar and hat with a permethrin-containing tick repellent.
- Do a tick check after walking in high-risk areas.
- Put any clothes that might have live ticks on them into a hot dryer for ten minutes to kill all insects.

Keep your Family Safe! Do Tick Chec