Neem Oil: A Safe Alternative to Deet

By Trinity Ava

Mosquitoes, no-see-um's, biting flies, fleas, and ticks can be the bane of outside fun when one returns from a picnic or hike covered in itchy bites. They "grace" our body with red, hot itchy bumps, irritating our skin, sanity and safety when they hover around us or use our body for food.

Most people realize that alternatives to Deet for outdoor protection and more serious issues like West Nile Virus are important but the controversy continues to rage about which alternatives work. Fortunately we can use empirical wisdom for which botanicals have worked for thousands of years, long before chemical substances like Deet and Picaridin entered the market places. While Deet and Picaridin are shown to be effective, this effectiveness comes at a price many are not willing to pay for the health of their family and the environment. Neem oil is a safe, skin-friendly and cost-effective solution.

Neem, or *Azadirachta indica* which literally means "The Free Tree of India," is commonly referred to as the *"as the village pharmacy,"* and has been used safely for thousands of years for repelling insects. Neem leaves are classically stored with grains and beans to protect them from insect infestations. Neem oil is one of the more widely used and safe bio-pesticides in organic agriculture to ward off pest, unwanted levels of bacteria and fungi while simultaneously ***enriching the health and vitality of the soil, plants and farms as well as bees and other pollinators***

Neem has the innate intelligence to be unfriendly to harmful pests, viruses, bacteria and fungal infections while simultaneously being friendly to humans, pets and the earth. It has a rich, nutty, garlic-like aroma that blends beautifully with essential oils when used topically for mosquito protection. In addition to its powerful ability to ward off mosquitoes and other biting insects, Neem is exceptionally beneficial to the skin. Neem oil is rich in omega 3, 6 and 7 fatty acids that help to soothe and heal the skin. Neem is also very cooling when applied topically so it will help to reduce irritation and potential infections caused by bites. Not many botanicals can claim this powerful dual action – it wards off mosquitoes but if you do get a bite, it soothes the itch and heals the skin!

Natural products that use herbs such as Neem oil and essential oils for outdoor protection do not contain one "active ingredient."

- Natural sprays based on botanicals ingredients contain a multitude of "active ingredients" from all of the plants that are in the formulation to co-create a symphony of information that has been time tested for thousands of years by the plants to ward off infestations of insects, microbes and fungi. **They are also more user friendly to our skin and the planet.**

It is hypothesized that, just as we created "super bacteria" with our antibacterial hand soaps, we are creating "super mosquitoes" and other pests that are resistant to the "active ingredients" in repellents such as Deet or Picaridin. The benefit of Neem and other essential oils is not only do they work as repellents, they are readily excreted from the body, break down in the environment and every year the crop will contain different constituents so that a mosquitoes or other pests cannot build up a resistant to the plant.

There is a vast amount of reliable information documenting Neem's effectiveness in controlling insects and parasites. The Extension Toxicology Network (http://pmep.cce.cornell.edu/profiles/ext...n-ext.html), supported by the USDA in conjunction with several respected universities, states that using neem as a pesticide is "relatively non-toxic" and caused no significant problems even at the extraordinary high dosages fed to laboratory rats. (See http://pmep.cce.cornell.edu/profiles/fung-nemat/febuconazole-sulfur/neem/tol-exem-neemoil.html for more information).

You can find several interesting articles about neem on the National Institute of Health (a sister agency to the U.S. Food and Drug Administration) database, including a 1993 article from the *Journal of the American Mosquito Control Association*. The direct quote from that government-funded source reads: "**Two percent neem oil mixed in coconut oil, when applied to the exposed body parts of human volunteers, provided complete protection for 12 h from the bites of all anopheline (mosquitoes that carry malaria) species. Application of neem oil is safe and can be used for protection from malaria in endemic countries**." (See

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8245950).

Unfortunately pure neem oil has not been registered with the EPA as a pesticide. Agricultural chemicals sold in the US are either clarified hydrophobic extracts of neem oil, created when neem oil is treated with alcohol to separate out the azadirachtin, or the azadirachtin itself. Both products are available commercially, with the EPA fact sheet noting that "the ability of the oil to repel pests has been known for thousands of years; the oil also has been used on skin and medicinally... Based on results of toxicity tests, risks to human health are not expected from use of these active ingredients. " (See http://www.epa.gov/pesticides/biopesticides/ingredients/factsheets/factsheet_025007.htm for further information.)

Still, natural-product manufacturers who wish to sell products with Neem and essential oils for bug protection at this time are not able to make any insecticidal claims without incurring major fines from both the federal and some state governments. To change this, consumers should write letters to the Environmental Protection agency (EPA), specifically Brian Steinwand, biopesticides ombudsman, at steinwand.brian.epa.gov.

What are mosquitoes after?

- Mosquitoes have almost no olfactory powers whatsoever--they have, in fact, a very selective and narrow olfactory "spectrum."
- Mosquitoes are attracted to carbon dioxide (CO_2) emissions from our breath and the scent of lactic acid from our bodies. The more you sweat, the more mosquitoes are likely to be more attracted to you!
- A botanical mosquito "repellent" works **by blocking their ability to smell and find you! Regular applications are needed for best results.**