

Nootkatone: Research and development of an all-natural plant compound to help fight ticks, mosquitoes, and other insects



At a Glance

All-natural: Found in essential oils from Alaska yellow cedar trees, some herbs, and citrus fruits like grapefruit.

Smells good: Nootkatone gives grapefruit its flavor and citrus smell. It is widely used as a fragrance in perfumes.

Non-toxic: Approved as “food grade” flavoring agent by the FDA.

Environmentally-friendly: All-natural nootkatone does not last long in the environment.



All-natural compound

Nootkatone is a compound found in Alaska yellow cedar trees, citrus fruits, and some herbs. The Food and Drug Administration (FDA) has approved the use of nootkatone as a flavoring in citrus-flavored foods and beverages. Nootkatone is also used in perfumes and colognes. Once rare and expensive, nootkatone can now be produced at a low cost through fermentation.

Breakthrough repellent and pesticide

Researchers from the Centers for Disease Control and Prevention (CDC) partnered with scientists from Oregon State University to test naturally occurring essential oils from plants native to the Pacific Northwest to see if they would kill or repel blacklegged ticks. CDC holds three patents on nootkatone and is working with an exclusively licensed commercial partner to evaluate and develop new repellents and pesticides. Low toxicity and citrus scent of nootkatone makes it ideal for use in soaps, repellents, and lotions.



Environmentally-friendly tick and mosquito control

Nootkatone appears to kill mosquitoes and ticks in a unique way, different from other pesticides already approved by the US Environmental Protection Agency (EPA). This could help in the fight against mosquitoes that have become resistant to current pesticides.

In 2015, the EPA classified nootkatone as a biochemical pesticide (an all-natural pesticide). This classification typically allows for faster product registration.