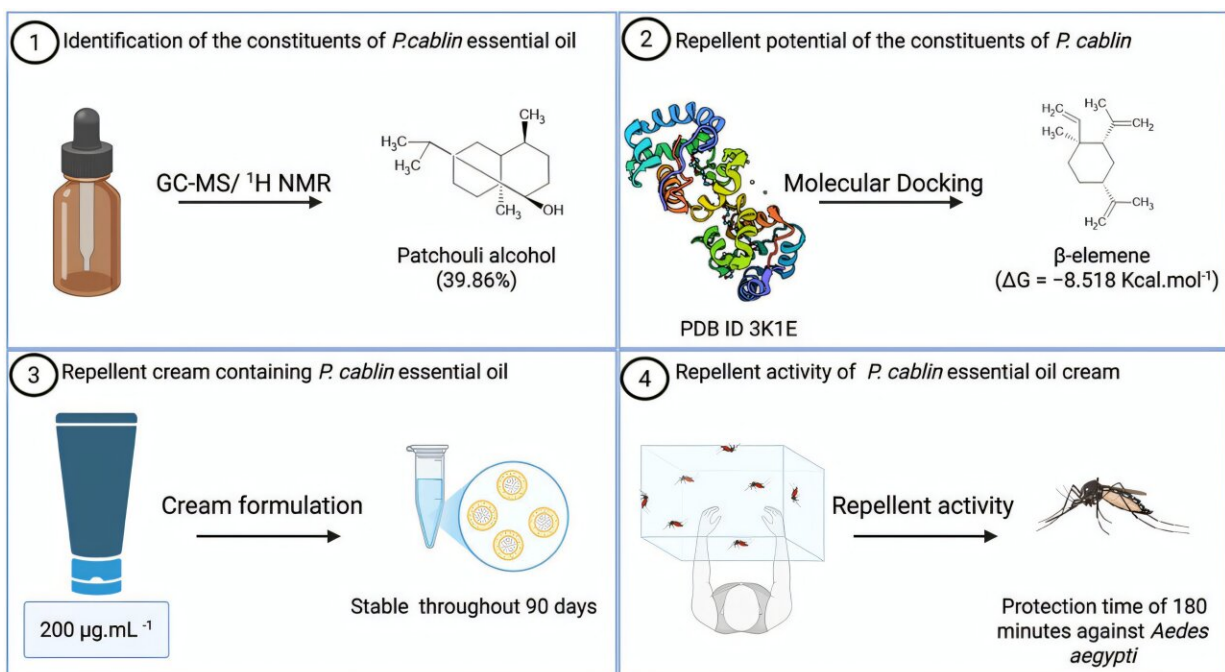


Could patchouli oil save your skin from mosquito bites?

May 8 2026



Credit: *ACS Omega* (2026). DOI: 10.1021/acsomega.6c00802

Summertime hikes and afternoons in the backyard can be ruined by mosquito bites. So, many people apply topical synthetic repellents like DEET before heading outside, but there is a growing market for natural repellants that could be less irritating to the skin and more environmentally friendly. In their article [published](#) in *ACS Omega*, researchers describe their new plant-based formulation, a patchouli oil-

infused lotion that protected against mosquitoes as effectively as a commercially available DEET formulation.

A team of researchers led by Lizandra Lima Santos hypothesized that patchouli oil's rich, earthy aroma—which makes it a popular ingredient in incense and perfume—could act as a sort of invisibility cloak, overwhelming a mosquito's sense of smell and making the wearer undetectable.

That's how other bio-based natural alternatives like citronella and eucalyptus oils work, but their ability to prevent mosquito bites doesn't last as long as their synthetic counterparts. Patchouli oil also [breaks down quickly](#) when exposed to air, which challenged the team to create a stable formulation for their repellent while preserving the oil's activity. So, they combined patchouli oil with an unscented cream base to create an effective, long-lasting, anti-mosquito lotion.

The researchers asked volunteers to coat their forearms with either the patchouli oil lotion or a commercially available DEET lotion, while one unlucky participant acted as a control with no repellent. Participants then stuck their arms in a cage filled with 50 hungry *Aedes aegypti* mosquitoes over three hours. The team observed no bites on arms treated with the patchouli-infused and DEET lotions, while the bare arms unsurprisingly had lots of bites.



Study coauthor Cleidjane Gomes Faustino places her arm treated with a patchouli-based repellent in a cage filled with hungry mosquitoes. Credit: Lizandra Lima Santos

"Unlike many natural repellents that lose effectiveness quickly due to volatility, our formulation achieved complete protection against *A. aegypti* for up to three hours at a relatively low concentration," says Lima Santos.

One of the most surprising findings was the high level of repellency achieved at a low concentration of patchouli oil. "Natural repellents are often expected to require higher doses to match the performance of synthetic compounds," says Lima Santos, "so observing complete protection for three hours was particularly encouraging."

These initial test results suggest that the patchouli oil cream offers

meaningful protection against mosquito bites. Next, the researchers plan to conduct targeted toxicological and clinical studies to determine the new formulation's long-term safety.

More information: Lizandra Lima Santos et al, Development and In Silico/In Vivo Evaluation of a Pogostemon cablin Essential Oil Cream as a Repellent against *Aedes aegypti*, *ACS Omega* (2026). [DOI: 10.1021/acsomega.6c00802](https://doi.org/10.1021/acsomega.6c00802)

Provided by American Chemical Society

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