

# Studies confirm breadfruit's ability to repel insects

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ARS scientists and their collaborators have identified three compounds in tropical breadfruit trees—capric, undecanoic and lauric acids—that can repel mosquitoes significantly better than DEET. Credit: Forest and Kim Starr, Starr Environmental, Bugwood.org.

Breadfruit, used as a folk remedy in Pacific regions to control insects, is an effective mosquito repellent, U.S. Department of Agriculture (USDA) scientists have found.

Agricultural Research Service (ARS) scientists and their collaborators at the University of British Columbia in Okanagan, Canada, identified three breadfruit [compounds](#)—capric, undecanoic and lauric acids—that act as insect repellents. ARS is the chief intramural scientific research agency of USDA.

In the study, chemist Charles Cantrell and his colleagues at the ARS Natural Products Utilization Research Unit (NPURU) in Oxford, Miss., and the University of British Columbia scientists collected smoke extracts by burning sun-dried clusters of flowers in the traditional method used by people in Pacific regions.

Capric, undecanoic and lauric acids, which are saturated fatty acids, were found to be significantly more effective at repelling mosquitoes than DEET, the primary [insect repellent](#) used against biting insects. For the first time, breadfruit was shown to actually work as a repellent, confirming it as a valid [folk remedy](#), according to Cantrell.

These same compounds found in breadfruit and other folk remedies were shown to be highly active and the most repelling in a different study that examined a variety of saturated and unsaturated [fatty acids](#). Cantrell teamed with Uli Bernier, a chemist in the Mosquito and Fly Research Unit at the ARS Center for Medical, Agricultural and Veterinary Entomology in Gainesville, Fla., and scientists at the University of Mississippi to evaluate the compounds. The test involved cloth treated with different concentrations of compounds and worn by volunteers. Again, these compounds were shown to provide effective protection against mosquitoes.

**More information:** Read [more](#) about this research in the November/December 2013 issue of Agricultural Research magazine.

Provided by Agricultural Research Service

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