

# New studies finds two native Australian plants have healing properties

May 29 2023

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The studies by Charles Darwin University's (CDU) Dr Elnaz Saki investigated the efficacy of *Calophyllum inophyllum* seed oil and *Tinospora smilacina* leaves water extract as alternative sources of wound healing medicine. Credit: Adnan Reza/Charles Darwin University

Two plants native to Northern Australia could have significant medicinal potential in the prevention and treatment of diseases, according to two studies by a Charles Darwin University (CDU) Ph.D. candidate.

Lead author and CDU Faculty of Faculty of Science and Technology candidate Elnaz Saki explored the potential of *Calophyllum inophyllum* seed oil (CSO) and *Tinospora smilacina* leaves water extract (TSWE) as alternative sources of medicine in two separate studies.

In the first study, published in *BMC Complementary Medicine and Therapies*, Dr. Saki explored the wound healing potential of CSO after turning it into a nanoemulsion, a mixture of liquids with a nano-sized droplet of oil. The second paper, published in *Clinical, Cosmetic and Investigational Dermatology*, studied the impact of adding TSWE to the CSO nanoemulsion.

"The study has shown that CSO and TSWE contain [bioactive compounds](#) such as flavonoids and [fatty acids](#), which have potent wound healing, antimicrobial, and antioxidant effects," Dr. Saki said.

"Both nanoemulsions demonstrated an improvement or equivalent activity for [biomedical applications](#) such as wound healing, antimicrobial, and antioxidant effects."

Dr. Saki's extensive interest in the diversity of plant species and their unique chemical compounds inspired her to pursue medical biotechnology, nanobiotechnology and nanomedicine.

She chose to work with *C. inophyllum*, also known as Alexandrian laurel, and *T. smilacina* because of their historical use in traditional medicine and bioactive compounds. CSO has been used to treat [skin diseases](#), wounds and pain while *T. smilacina*, commonly called snake vine, has long been used by First Nations people to treat snake bites,

headaches, rheumatoid arthritis and other inflammatory disorders.

"These [plants](#) represent a rich source of bioactive compounds that have not been fully explored regarding their potential therapeutic applications," Dr. Saki said.

"With the increasing demand for sustainable and eco-friendly solutions in the [pharmaceutical industry](#), I recognized an opportunity to contribute to this field by investigating the bioactive properties of plant extracts."

Dr. Saki, who recently graduated with a Ph.D. in Nanobiotechnology, hopes to continue her research and explore how these bioactive compounds work in vitro and in vivo.

"I am also interested in exploring the potential of these compounds to be included in novel therapies for various diseases, including anti-cancer, anti-inflammation, multidrug-resistant and infectious diseases," she said.

"I am interested in partnerships with pharmaceutical, bioceutical and cosmetic companies interested in developing and synthesizing new nanomedicine and therapies."

**More information:** Elnaz Saki et al, Optimisation of Calophyllum inophyllum seed oil nanoemulsion as a potential wound healing agent, *BMC Complementary Medicine and Therapies* (2022). [DOI: 10.1186/s12906-022-03751-6](https://doi.org/10.1186/s12906-022-03751-6)

Elnaz Saki et al, Formulation and Biomedical Activity of Oil-in-Water Nanoemulsion Combining Tinospora smilacina Water Extract and Calophyllum inophyllum Seeds Oil, *Clinical, Cosmetic and Investigational Dermatology* (2023). [DOI: 10.2147/CCID.S405427](https://doi.org/10.2147/CCID.S405427)

Provided by Charles Darwin University

Citation: New studies finds two native Australian plants have healing properties (2023, May 29)  
retrieved 29 April 2024 from

<https://medicalxpress.com/news/2023-05-native-australian-properties.html>

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