

**Embargoed until: 26 July: 7am EST / 12pm UK / 1pm CET**



*PeerJ – the Journal of Life & Environmental Sciences*

## **PRESS RELEASE**

### **Western science catches up with First Nations' medicinal use of ant honey**

*Research finds honeypot ant honey carries strong anti-microbial properties*



Australian honeypot ant in various sizes. [Credit: Dong et al.]

Scientists have discovered the honey produced by Australian ants possesses unique anti-microbial activity against bacteria and fungi that could make the liquid useful medicinally.

The research, published today in [PeerJ](#), was led by Andrew Dong and [Dr Kenya Fernandes](#) from the University of Sydney's [Carter Lab](#), which is led by [Professor Dee Carter](#) from the [School of Life and Environmental Sciences](#) and [Sydney Institute for Infectious Diseases](#).

The team studied the Australian honeypot ant, *Camponotus inflatus*, which is found throughout desert areas mainly in Western Australia and the Northern Territory.

Among their colonies are a class of overfed workers that are stuffed with nectar and sugary substances by other worker ants, causing their abdomens to inflate with honey and take on a translucent, amber appearance.

These ants effectively become immobile vending machines for their colony, regurgitating honey when other food options are scarce.

Danny Ulrich from the Tjupan language group, who runs [honeypot ant tours](#) in Kalgoorlie, helped the researchers track down specimens for their study.

“For our people, honey ants are more than just a food source. Digging for them is a very enjoyable way of life, and a way of bringing the family together,” Mr Ulrich said.

“Our people have been enjoying sweet honey ants for thousands of years.

“As for its medicinal use, we use it for sore throats and sometimes as a topical ointment to help keep infections at bay.”

The researchers said their study marks the first time that ant honey has been investigated for its medicinal properties.

“I have long been fascinated by the honeypot ant and its amazing way of producing and storing honey,” Mr Dong said.

“Given the medicinal use of the honey by Indigenous people, I wondered if it might have unique antimicrobial characteristics.”

The scientists have confirmed that ant honey has a quite different mechanism of action compared with Manuka honey, which is well established as a topical treatment for wounds and skin infections.

“Our research shows that honeypot ant honey possesses a distinctive effect that sets it apart from other types of honey,” Dr Fernandes said.

“This discovery means that honeypot ant honey could contain compounds with substantial antimicrobial power; identifying these could provide us with starting points for developing new and different types of antibiotics.”

Honeypot ants have been used medicinally by First Nations people for thousands of years, including for the treatment of [colds and sore throats](#). But now Western science is catching up with their traditions.

“This study demonstrates that honeypot ant honey has unique antimicrobial characteristics that validate its therapeutic use by Indigenous peoples,” Professor Carter said.

“Taking something that has been honed by evolution to work in nature and then applying this to human health is a great way to come up with therapeutic strategies.”

The researchers found the ant’s honey is effective against *Staphylococcus aureus*, a bacterium commonly known as golden staph. The bacteria colonise on the skin and nose of people, but if they enter through a cut, they can cause infection such as boils and sores or, in serious cases, death.

They also found ant honey is potent against two species of fungi, *Aspergillus* and *Cryptococcus*. Both fungi can be found in soil and this ability to inhibit them probably evolved to prevent ant colonies from being invaded by fungi. These fungi can also cause serious infection in people with suppressed immune systems.

**DOI:** 10.7717/peerj.15645

**Declaration:** The authors declare no competing interests. Danny Ulrich runs Goldfields Honey Ant Tours that includes observation of honeypot ants.

## Full Media Pack of images

**Images:** Available for download [here](#).

**Drive Link with the Article PDF** [here](#).

All media is CC BY 4.0. Photo/video credits are included in the filename.

**EMBARGOED - Embargoed until: 26 July: 7am EST / 12pm UK / 1pm CET**

**LINK TO THE PUBLISHED VERSION OF THIS ARTICLE:** <https://peerj.com/articles/15645/> The link will ONLY work after the embargo lifts. Your readers will be able to freely access this article via this URL.

## Cite this article

Dong AZ, Cokcetin N, Carter DA, Fernandes KE. 2023. Unique antimicrobial activity in honey from the Australian honeypot ant (*Camponotus inflatus*) *PeerJ* 11:e15645

<https://doi.org/10.7717/peerj.15645>

###

## About:

[PeerJ](#) is an Open Access publisher of seven peer-reviewed journals. PeerJ's mission is to give researchers the publishing tools and services they want with a unique and exciting experience. All works published by PeerJ are Open Access and published using a Creative Commons license (CC-BY 4.0). PeerJ is based in San Diego, CA and the UK and can be accessed at [peerj.com](https://peerj.com).

In 2022 PeerJ is celebrating its first decade of publishing and innovation.

*PeerJ* is the peer-reviewed journal for Biology, Medicine and Environmental Sciences. *PeerJ* has an Editorial Board of over 2,000 respected academics. PeerJ Media Resources (including logos) can be found at: [peerj.com/about/press](https://peerj.com/about/press)

###

## Media Contacts

- Professor Dee Carter | School of Life and Environmental Science, University of Sydney | +61 411 043 722 | [dee.carter@sydney.edu.au](mailto:dee.carter@sydney.edu.au)
- Dr Kenya Fernandes | School of Life and Environmental Science, University of Sydney | +61 420 581 667 | [kenya.fernandes@sydney.edu.au](mailto:kenya.fernandes@sydney.edu.au)
- Andrew Dong | School of Life and Environmental Science, University of Sydney | +61 431 998 722 | [andrew\\_dong@hotmail.com](mailto:andrew_dong@hotmail.com)

Media requests:

- Philip Ritchie | University of Sydney | +61 403 149 048 | [philip.ritchie@sydney.edu.au](mailto:philip.ritchie@sydney.edu.au)

For PeerJ:

Euan Lockie: [press@peerj.com](mailto:press@peerj.com)

*Note: If you would like to join the PeerJ Press Release list, please email your details to:*  
[press@peerj.com](mailto:press@peerj.com)