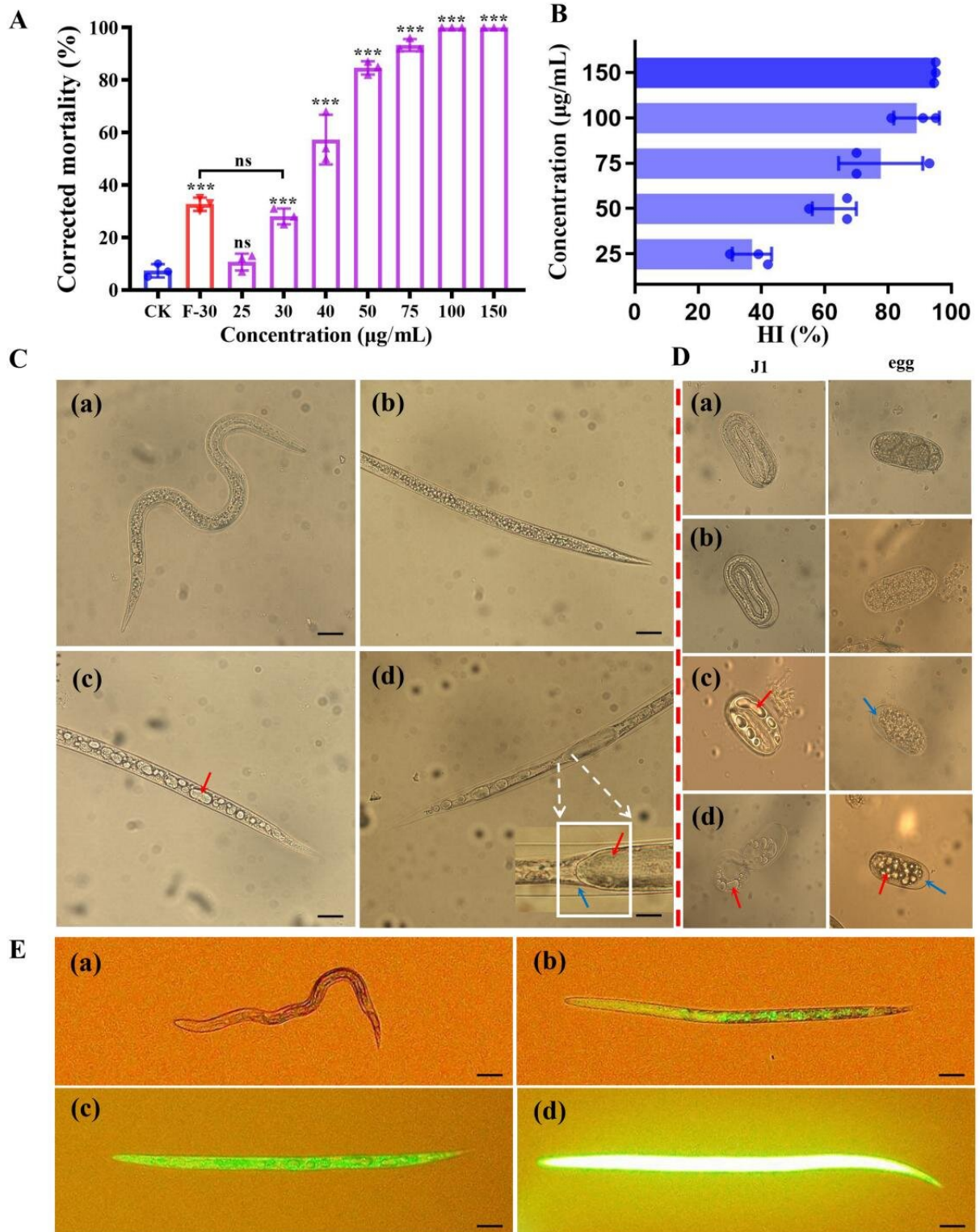


# Novel natural compound helps protect against plant parasites

April 22 2022

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Influence of 2-furoic acid on the reproductive indices and morphology of *M. incognita*. Credit: IOCAS

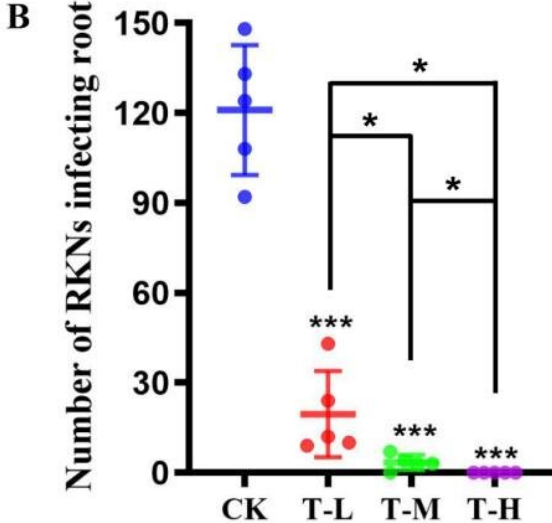
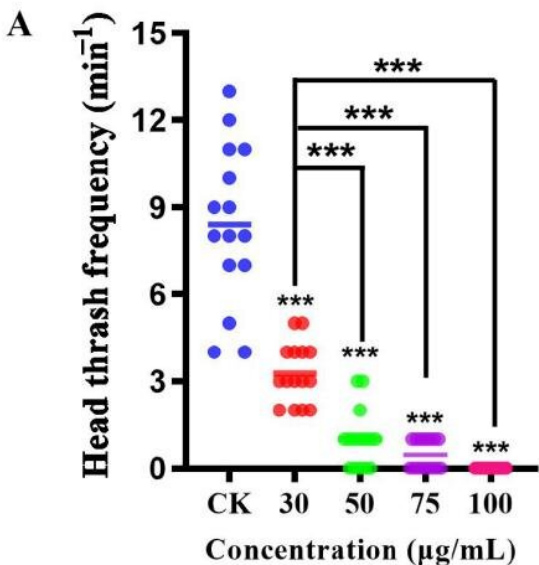
Plant-parasitic nematodes pose a great threat to global agriculture. To replace biohazardous nematicides, it is necessary to identify natural product-based agents to combat root-knot nematodes in agriculture that are equally effective as traditional nematicides.

Recently, Wang Linsong of Prof. Li Pengcheng's team from the Institute of Oceanology of the Chinese Academy of Sciences (IOCAS) has obtained nematicidal compounds with novel skeleton structures of furyl fragments in a chemo-ecological study, which could serve as a preferable lead material for novel nematicide research and development.

The study was published in *Journal of Agricultural and Food Chemistry* on April 11.

The researchers isolated an *Aspergillus fumigatus* based on the antagonistic interactions in a chemo-ecological study, which could induce the formation of withering of the gut and vacuole-like structures in the [nematode](#) body. Based on these typical morphological changes, novel skeleton furyl compound 2-furoic acid was subsequently identified by liquid chromatography-mass spectrometry (LC-MS).

2-furoic acid showed effective mortality activity in vitro, and continuous 2-furoic acid exposure had obvious negative influences on both nematode vitality and egg hatchability. Notably, the 1T-2 fermentation broth and 2-furoic acid had significant control efficacy on *Meloidogyne incognita* in vivo under the greenhouse.



Influence of 2-furoic acid on vitality and invasion of *M. incognita* . Credit:

IOCAS

"Antagonistic fungi as a natural reservoir of potential agents against root-knot nematodes could provide clues for future directions for their biocontrol," said Wang Linsong, first author of the study.

"This study provides [valuable insights](#) on the use of 2-furoic acid with biocontrol potential as a valuable lead compound for the development of new nematicides for crop protection and would help to exploit the further [development](#) of bioactive compounds of *Aspergillus fumigatus* from the oceans in the future," said Prof. Li.

**More information:** Linsong Wang et al, Novel Lead Compound Discovery from *Aspergillus fumigatus* 1T-2 against *Meloidogyne incognita* Based on a Chemical Ecology Study, *Journal of Agricultural and Food Chemistry* (2022). [DOI: 10.1021/acs.jafc.1c08147](https://doi.org/10.1021/acs.jafc.1c08147)

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