

Chemical identification of isoflavonoids from a termite-associated *Streptomyces* sp. RB1 and their neuroprotective effects in murine hippocampal HT22 cell line.

Lee SR, Song JH, Song JH, Ko HJ, Baek JY, Trinh TA, Beemelmans C, Yamabe N, Kim KH (2018) Chemical identification of isoflavonoids from a termite-associated *Streptomyces* sp. RB1 and their neuroprotective effects in murine hippocampal HT22 cell line. *Int J Mol Sci* 19(9), 2640.

[Details](#)



Abstract

Insect-associated bacteria have been recognized as a very promising natural resource for discovering bioactive secondary metabolites with diverse pharmacological effects. One new isoflavonoid glycoside, termisoflavone D (1), together with seven known isoflavonoids (2–8), were identified from MeOH extracts of the fungus-growing termite-associated *Streptomyces* sp. RB1. The chemical structure of the new compound 1 was elucidated using comprehensive spectroscopic methods including 1D and 2D NMR, along with LC/MS analysis. The existence of two rhamnose moieties in 1 was determined with comparative NMR analysis, and the absolute

configuration was elucidated using chemical reactions. The neuroprotective activities of compounds 1–8 were thoroughly investigated using the murine hippocampal HT22 cell line. Compound 5 prevented glutamate-induced HT22 cell death by blocking intracellular reactive oxygen species (ROS) accumulation. The present study provides the first experimental evidence for the potential use of isoflavonoids from termite-associated bacteria as lead compounds that can prevent neuronal damage induced by glutamate.

Involved units

[Chemical Biology of Microbe-Host Interactions](#) [Christine Beemelmans](#) [Read more](#)

Leibniz-HKI-Authors



Christine Beemelmans

[Details](#)

Topics

[Secondary metabolites from insect-associated microbes](#)

Identifier

doi: 10.3390/ijms19092640

PMID: 30200599