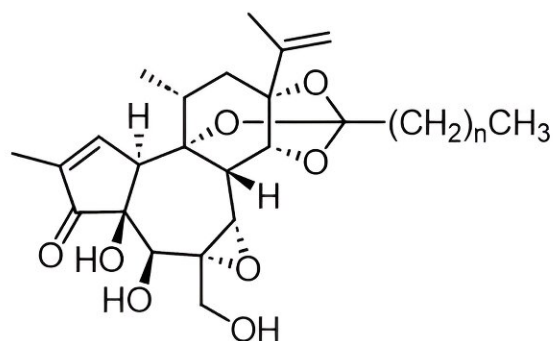


Discovery of daphnane diterpenoids in *Daphne pedunculata* could lead to new HIV drugs

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daphnanes **1–5** ($n = 6, 7, 8, 9, \text{ or } 10$)
with anti-HIV activity $IC_{50} = 0.82\text{--}7.13 \text{ nM}$

Structure of daphnane diterpenoids isolated from *Daphne pedunculata*.. Credit: Dr. , Kouharu Otsuki

A research group led by Professor Wei Li of the Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Toho University, in collaboration with Shenyang Pharmaceutical University in China and Duke University Medical Center in the United States, has discovered that *Daphne pedunculata* (Thymelaeaceae), contains rare daphnane diterpenoids with odd-numbered aliphatic side chains. Furthermore, these researchers revealed that these compounds inhibit the replication

of the human immunodeficiency virus (HIV).

This discovery is anticipated to lead to the development of novel HIV therapeutics with excellent anti-HIV activity. This research was [published](#) in the *Journal of Natural Medicines*.

The plant family Thymelaeaceae comprises 53 genera and more than 800 species that are widely distributed worldwide, excluding the [polar regions](#). These plants contain diterpenoids with notable biological activities, including anticancer and anti-HIV activities. *Daphne pedunculata* is an evergreen shrub endemic to Yunnan Province in China, which blooms with yellow flowers from November to December.

The research group had previously isolated and structurally determined novel macrocyclic daphnane diterpenoids with anti-HIV activity from *D. pedunculata*. In this study, two novel daphnane diterpenoids with unusually odd-numbered aliphatic side chains were isolated from *D. pedunculata* and their anti-HIV activity was elucidated. The results of this study will contribute to further our knowledge of the structure–activity relationship between daphnane diterpenoids and anti-HIV activity, and are expected to lead to the discovery of new drugs for the treatment of HIV infection.

More information: Lingjian Tan et al, Daphnane diterpenoid orthoesters with an odd-numbered aliphatic side chain from *Daphne pedunculata*, *Journal of Natural Medicines* (2024). [DOI: 10.1007/s11418-024-01826-x](#)

Provided by Toho University

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