

Phytogrowth-Inhibitory activities of β -dolabrin and γ -thujaplicin, hinokitiol-related compounds and constituents of *Thujopsis dolabrata*.

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Abstract:

Beta-dolabrin and gamma-thujaplicin isolated from *Thujopsis dolabrata* Sieb. et Zucc. var *hondai* Makino, like hinokitiol, showed strong phytogrowth-inhibitory activities, and their growth-inhibitory activities were as high as that of sodium 2,4-dichlorophenoxyacetate used as a positive control. In particular, the phytogrowth-inhibitory activity of gamma-thujaplicin was strong and it completely inhibited the germination of this seed of *Brassica campestris* L. subsp. *rapa* Hook f. et Anders at the concentration of 30 ppm. Both compounds exhibited inhibitory activities on *B. campestris* L. subsp. *rapa* Hook f. et Anders and *Sesamum indicum* Linne, even at the low concentration of 10 ppm. At 7 d after treatment with beta-dolabrin and gamma-thujaplicin, the amount of chlorophyll in the cotyledons of *B. campestris* L. subsp. *rapa* Hook f. et Anders treated with both compounds was greatly decreased as compared with the control. The findings indicate that the phytogrowth-inhibitory action might be a common biological activity of hinokitiol-related compounds, suggesting that at least a part of their phytogrowth-inhibitory actions seems to be related to a decrease in chlorophyll content.