

Biological activity of tropolone.

Authors:

Morita, Y., Matsumura, E., Okabe, T., Shibata, M., Sugiura, M., Ohe, T., Tsujibo, H., Ishida, N., Inamori, Y.

Source:

Biological and Pharmaceutical Bulletin. Vol. 26(10): 1487-1490, (2003)

Abstract:

Tropolone (1) showed strong insecticidal activity on *Tyrophagus putrescentiae* and *Dermatophagoides farinae*. The insecticidal effect of 1 on both insects was stronger than that of hinokitiol (2, 4-isopropyltropolone: major component of *Thujopsis dolabrata* SIEB. et ZUCC. *hondai* MAKINO). The insecticidal activity of both compounds was higher than that of N,N-diethyl-m-toluamide (DEET), used as a positive control. Compound 1 had potent insecticidal activity against *Coptotermes formosanus*, although its activity was much lower than that of commercial chloropyrifos. Like 2, 1 showed the inhibitory activity toward metalloproteases such as carboxypeptidase A, collagenase and thermolysin and their inhibitory activities were much higher than that of 1,10-phenanthroline, used as a positive control. The inhibitory activity of 1 on carboxypeptidase A was especially high, its 50% inhibitory concentrations (IC₅₀) being 2.7331026M. This inhibitory activity was as high as that of 2 (IC₅₀: 2.7631026M). Compound 1 inhibited the growth of seven kinds of plant-pathogenic fungi and their minimum inhibitory concentration (MIC) values were in the range of 6.0—50.0 ug/ml. In particular, 1 showed strong antifungal activity on *Pythium aphanidermatum* IFO-32440 (MIC: 6.0 ug/ml).