

INSECTICIDAL AND FUNGICIDAL ACTIVITY DERIVATIVE FROM CEDRELONE

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Abstract: Leaf-cutting ants, *Atta sexdens rubropilosa*, dominant herbivores in the tropics, are considered a serious pest for agriculture, especially when they attack cultivated plants¹. They cut vegetal matter to feed its symbiotic fungus, *Leucoagaricus gongylophorus*, and this symbiotic relationship is essential to their survival². Different methods and new strategies have been proposed for controlling these ants such as the search and synthesis of natural compounds. Limonoid is a class of natural products found in superior vegetables, more specifically in the family Meliaceae. Limonoids exhibit various biological activities such as anticancer, antiparasite, antimalarial, antifungal, bactericidal and especially insecticide. *Trichilia* species have been identified as promising for possessing compounds with insecticidal activity comparable to that with the limonoid azadirachtin, but possibly, with simpler molecular structure and, therefore, economically viable synthesis. The genus *Trichilia*, which consists of about 230 species, is mainly distributed in lowland tropical of America. Numerous secondary metabolites that exhibit significant insecticidal activity were already found in *Trichilia* genus³. Cedrelone is a limonoid isolated in large amount from *Trichilia catigua* (Meliaceae) in recent studies of the group of natural products of the Federal University of São Carlos⁴. This limonoid showed 54% inhibition in the symbiotic fungus of leaf cutting ants (*Leucoagaricus gongylophorus*). Based in this result, it was proposed some semi-syntheses, in the search for enhancing the fungicidal effect. In this context, acetylation of cedrelone was performed and the acetate of cedrelone was identified through NMR, UV and IR techniques and submitted to testes against workers of *A. sexdens rubropilosa* and their symbiotic fungus, *L. gongylophorus*. The bioassay against symbiotic fungus (*L. gongylophorus*) showed a significant increase, showing 76% inhibition. Tests against leaf-cutting ants (*A. sexdens rubropilosa*) are ongoing.

References:

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