

# Tyrosinase Inhibitors from Galls of *Rhus javanica* Leaves and Their Effects on Insects

Isao Kubo<sup>a\*</sup>, Ikuyo Kinst-Hori<sup>a</sup>, Ken-Ichi Nihei<sup>a</sup>, Frida Soria<sup>a</sup>, Midori Takasaki<sup>a</sup>, José S. Calderón<sup>b</sup>, and Carlos L. Céspedes<sup>b\*</sup>

<sup>a</sup> Department of Environmental Science, Policy and Management, University of California, Berkeley, California 94720-3112, USA. Fax: 510-643-0215.

E-mail: ikubo@uclink4.berkeley.edu

<sup>b</sup> Departamento de Productos Naturales, Instituto de Química, UNAM, Ciudad Universitaria, Coyoacán, 04510 México, D. F., MÉXICO. Fax: +52 55-5616-2203.

E-mail: ccespede@servidor.unam.mx

\* Authors for correspondence and reprint requests

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As a defense mechanism of the leaves of *Rhus javanica* (Anacardiaceae) against the aphid *Melaphis chinensis* (Aphididae) attack, tannic acid is rapidly accumulated and forms galls along the midrib of the leaves resulting in a unique natural medicine Gallae Rhois. Tannic acid was found to inhibit the oxidation of L-3,4-dihydroxyphenylalanine (L-DOPA) catalyzed by tyrosinase (EC 1.14.18.1) with an IC<sub>50</sub> of 22  $\mu$ M. The aphid would detoxify the ingested toxic tannic acid to relatively nontoxic gallic acid, whereas the non-adapted pink bollworm *Pectinophora gossypiella* larvae are sensitive to the ingested tannic acid.

**Key words:** Gallae Rhois, Tyrosinase Inhibitory Activity, Insect Growth Inhibitory Activity