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

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Z. Naturforsch. 58c, 719–725 (2003); received February 11/April 16, 2003

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\textsubscript{50} of 22 µM. 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