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In vitro evaluation of the antiplasmodial activity of *Dendropanax morbifera* against chloroquine-sensitive strains of *Plasmodium falciparum*

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실험목적 (Objectives)

Dendropanax morbifera Leveille (Araliaceae) is an endemic species and distributes in the southern-west part of south Korea. The roots, leaves, seeds and stems of this plant are used in folk medicine for the treatment of headache, Infectious diseases, skin diseases and malady. Recently, polyacetylene compounds have been isolated from the *D. morbifera* and showed to have anticomplement activity. However, this plant biological activity has not been investigated in detail. From this point of view, we have screened the local plants in Korea for their abilities to antiplasmodial activity in vitro. This work compared almost quantitatively the magnitude of the antiplasmodial activity actions of *D. morbifera* in Korea and also located some source plants where potential antiplasmodial activity phytochemicals could be characterized.

재료 및 방법 (Materials and Methods)

○ 실험재료

The lower stem parts of *D. morbifera* were provided by Korea Horticulture Sapling Company in October 2007 at Jeon-Ju, Jeollabuk-Do (South Korea). Artemisinin and chloroquine diphosphate were purchased from Sigma-Aldrich (St.Louis, MO). Antiplasmodial activity was monitored using a chloroquine-sensitive strain of *P. falciparum* (D10).

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○ 실험방법

Antiplasmodial activity was monitored throughout the purification process using the D10 (chloroquine-sensitive) strain of *P. falciparum* as described earlier (Trager and Jensen 1976) using the parasite lactate dehydrogenase assay to measure parasite viability (Makler et al. 1993).

실험결과 (Results)

The methanolic extract of the lower stem parts of *D. morbifera* was investigated for its activity against chloroquine-sensitive strains of *Plasmodium falciparum* using the parasite lactate dehydrogenase assay method. Two cycloartane-type glycosides Oleifoliosides A (1) and B (2), and Dendropanoxide (3), β -Amyrin (4), α -Amyrin (5) were isolated from the stem parts of *D. morbifera*. All five compounds were evaluated for in vitro antiplasmodial activities as well as their cytotoxic potential on SK-OV-3 cancer cell line cells. Compounds 2, 3 showed notable growth inhibitory activity against chloroquine-sensitive strains of *Plasmodium falciparum* with IC₅₀ values from 6.2 and 5.3 μ M. This compound showed no significant cytotoxicity (IC₅₀ > 150 μ M) evaluated using SK-OV-3 cancer cell line cells. The antiplasmodial activity of 2 and 3 are being reported for the first time in this study and highlights the component about international health.

참고문헌(References)

1. Trager W., Jensen, J.B. (1976). *Science*193:673-675.
2. Makler M.T., Ries J.M., Williams J.A., Bancroft J.E., Piper R.C., Gibbins B.L., Hinrichs D.J. (1993). *Am. J. Trop. Med. Hyg*48:739-741.