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Anti-Allergic Activities of Smilax Glabra Rhizome Extracts and Its Isolated Compounds

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Abstract : Background: The rhizomes of Smilax glabra (SG) has long been used in Traditional Chinese and Thai herbal medicine to treat a variety of infectious diseases and immunological disorders. Objective: To investigate the in vitro anti-allergic activities of crude extracts and pure isolated flavonoid compounds from SG by determination of inhibitory effects on antigen-induced release of β-hexosaminidase from RBL-2H3 cells. Methods: The in vitro inhibitory effects of crude aqueous and organic extracts on beta-hexosaminidase release in RBL-2H3 cells were evaluated as an in vitro indication of possible anti-allergic activity in vivo. Bioassay-guided fractionation of extracts was used to isolate flavonoid compounds from the ethanolic extracts. Results: The 95% and 50% ethanolic extracts of SG showed remarkably high anti-allergic activity, with IC50 values of 5.74 ± 2.44 and 23.54 ± 4.75 µg/ml, much higher activity than that for Ketotifen (IC50 58.90 µM). The water extract had negligible activity (IC50 > 100 µg/ml). The two isolated flavonols, Engeletin and Astilbin, showed weak anti-allergic activity, IC50 values 97.46 ± 2.04 and > 100 µg/ml, respectively. Conclusions: The 95% and 50% ethanolic extracts of SG showed strong anti-allergic activity but two flavonol constituents did not show any significant anti-allergic activity. These findings suggest that a combination of effects of various phytochemicals in crude extracts used in traditional medicine are responsible for the purported anti-allergic activity of SG herbal preparations. The plethora of constituents in crude extracts, as yet unidentified, are likely to be acting synergistically to account for the strong observed anti-allergic in vitro activity.

Keywords : Smilax glabra, anti-allergic activity, RBL-2H3 cells, flavonoid compounds
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