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INHIBITION ASSAY / YIELD REDUCTION ASSAY

YAWALAK PANPISUTCHAI : INVESTIGATION OF ANTI-HERPES  
SIMPLEX VIRUS ACTIVITIES OF *BARLERIA LUPULINA* LINDL. AND  
*CLINACANTHUS NUTANS* (BURM. F.) LINDAU EXTRACTS USING PLAQUE  
INHIBITION AND YIELD REDUCTION ASSAYS. THESIS ADVISORS:  
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Thai folklore medicine has suggested *Barleria lupulina* Lindl. and *Clinacanthus nutans* (Burm. f.) Lindau as remedies for treatment of herpes simplex virus (HSV) infections.

The present study investigated the anti-HSV activities of the aforementioned plant extracts.

The ability of the reconstituted extracts of these two plants to inactivate HSV-2 type 2 strain G [HSV-2 (G)] directly was tested. Plaque inhibition and yield reduction assays were then used to test intracellular anti-HSV activities against standard HSV-2 (G) and 5 clinical HSV-2 isolates. Acyclovir was used as a positive control and standard HSV-1 strains were also employed in certain assays. It should be noted that the doses of reconstituted extracts, used in both assays, were not toxic to uninfected culture cells.

The reconstituted extracts could inactivate HSV-2 (G) directly. By the plaque inhibition assay, *B. lupulina* exerted activities against all five HSV-2 isolates but not HSV-2 (G) while *C. nutans* did not show any activities at all. When the yield reduction assay was applied, it was found that *B. lupulina* could significantly reduce the yields of viruses in cells treated with the extract including those infected with HSV-2 (G). The activities were remarkably pronounced in cells treated with the extracts for at least 24 hours. Antiviral activities of *C. nutans* against these viruses were noted only for infected cells treated with the highest dose (2 mg/ml) of the extract.

This study has indicated anti-HSV-2 properties in *B. lupulina* rather than in *C. nutans* extract. Therefore, further research concerning the development of anti-herpes drug should be focused on *B. lupulina*.