

Title : Inhibition of herpes simplex virus type 2 by the extract of *Clitoria ternatea* flower

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Major : Microbiology

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Type of presentation* (choose 1) :

- Oral Presentation
- Poster
- Cooperative Education

ABSTRACT

Herpes simplex virus type 2 (HSV-2) is a virus that can cause genital herpes, a sexually transmitted disease. HSV-2 infections are commonly treated with the antiviral drug acyclovir. However, long-term usage of synthetic drug can lead to drug resistant strains of HSV. Therefore, this study is important for exploring flower extracts as an alternative agent that can inhibit HSV-2 infection. The efficacy of extracts from butterfly pea flowers (*Clitoria ternatea*) was tested at non-toxic concentrations to determine their ability to inhibit HSV-2. Crude and anthocyanin extracts obtained by aqueous and ethanolic extraction were studied. Cytotoxicity was assessed using the MTT assay, which revealed that the aqueous crude extract and anthocyanin that extracted with 1% acetic acid showed 50% cytotoxic concentrations (CD_{50}) of 3.14 ± 0.16 mg/ml and 2.81 ± 0.09 mg/ml, respectively. The ethanolic crude extract and anthocyanin that extracted with 1% acetic acid in 50% ethanol demonstrated CD_{50} values of 1.43 ± 0.14 mg/ml and 0.72 ± 0.03 mg/ml, respectively. The antiviral activity was assessed using the plaque reduction assay after viral attachment to the cultured cells. The results showed that at a concentration of 1 mg/ml, the anthocyanin that extracted with 1% acetic acid and aqueous crude extract inhibited the virus by $61.44 \pm 1.11\%$ and $50.71 \pm 4.15\%$, respectively, while the ethanolic crude extracts inhibited HSV-2 less than 50%. During viral attachment phase, all four extracts inhibited the virus by more than 50%. Specifically, the ethanolic crude extract at concentrations of 1 mg/ml and anthocyanin that extracted with 1% acetic acid in 50% ethanol at concentration of 0.25 mg/ml inhibited the virus by $88.35 \pm 1.51\%$ and $71.16 \pm 1.17\%$, respectively. Therefore, the anthocyanin that extracted with 1% acetic acid and aqueous crude extract of butterfly pea flowers effectively disrupted the virus after attachment to cultured cells. However, the ethanolic extracts and anthocyanin that extracted with 1% acetic acid in 50% ethanol showed greater inhibition during the virus attachment. These results suggest that these extracts may lead to the development of products for the treatment or prevention of herpes simplex viral infections in the future.