

P6 THE INHIBITORY EFFECTS OF EXTRACTS OF SOME HERBAL MEDICINES ON THE PRODUCTION OF PROINFLAMMATORY CYTOKINES BY IN VITRO STIMULATED HUMAN BLOOD CELLS

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ABSTRACT

Purpose : *Andrographis paniculata*, *Clinacanthus nutans*, *Gynura pseudo-china* and *Gynura integrifolia* had been widely used as antiinflammatory herbs in Chinese and Thai traditional medicine. TNF- α , IL-1- β and IL-6 are proinflammatory cytokines produced mainly by blood monocytes and tissue macrophages. They play crucial role in the processes of inflammation. Interference with the production of proinflammatory cytokines may be responsible for their biological activity. It is therefore, the purpose of this study to investigate the effects of test compounds including, andrographolide; an active principle isolated from the leaf of *Andrographis paniculata*, ethanol extracts from *Clinacanthus nutans*; *Gynura pseudo-china*; and *Gynura integrifolia* on the production of proinflammatory cytokines by lipopolysaccharide (LPS)-stimulated human blood cells.

Methods : Heparinized human blood obtained from normal volunteers was stimulated with LPS in the presence or absence of test compounds. After a 6-24 hour incubation, supernatant levels of IL-1, IL-6 and TNF- α were measured by ELISA.

Results : Andrographolide at a concentration of 20 $\mu\text{g/ml}$ caused a decrease in the production of TNF- α by LPS-stimulated blood cells down to 3.7% of the level in the control group, while the production of IL-1- β and IL-6 were slightly increased. The ethanol extracts of *Clinacanthus nutans* and *Gynura pseudo-china* dose dependently (20 $\mu\text{g/ml}$) and significantly suppressed the LPS-stimulated whole blood generation of IL-1- β but not the production of IL-6 and TNF- α . The ethanol extract of *Gynura integrifolia* did not inhibit the production of TNF- α , IL-1- β and IL-6 by the LPS-stimulated blood cells.

Conclusion : Although the production of IL-1- β and IL-6 are slightly increased, the data clearly indicates that andrographolide possesses the inhibitory effect on TNF- α production by LPS-stimulated human blood cells. This activity may contribute to the antiinflammatory activity previously reported. This effect may be dose-dependent and may also be involved the inhibition of inflammatory mediators of arachidonic acid pathway. The inhibitory effects of ethanol extracts of *Clinacanthus nutans* and *Gynura pseudo-china* on the production of IL-1- β indicate the activity contributing to the antiinflammatory action.