

CHAPTER V

CONCLUSION

The present study demonstrated various effects of medicinal plants on lymphocyte proliferation. However, only extracts of *C. asiatica* and *R. nasutus* exerted immunomodulating activities. The water extract of *C. asiatica* and *R. nasutus* increased lymphocyte mitogenic responses. In contrast, ethanol extract of *C. asiatica* inhibited the lymphocyte proliferation. The difference in the way these extracts affected lymphocyte stimulation or inhibition perhaps indicated various modes of action. The water extract of *C. asiatica* and *R. nasutus* increased the T lymphocyte proliferation by stimulating cytokine (IL-2 and TNF- α) production, resulting in stimulation of B cell proliferation, and finally increased the specific antibody production *in vivo*. Moreover, the stimulation of macrophage activity by increases NO and TNF- α production was one mechanism of these plants in the stimulation of immune responses. Ethanol extract of *C. asiatica*, which exerted immunosuppressive activity showed the opposite effects in all parameters including NO and TNF- α production in mouse macrophages. The induction of NO and TNF- α production may augment macrophage function and thus contribute to cytotoxicity towards viruses, other pathogens and tumor cells. Conversely, the inhibition of NO and TNF- α production could also be of benefit in certain circumstances given that pathological effects can result from an excess of NO production. The *C. asiatica* extract also increased the macrophage-mediated cytotoxicity of tumor cells, further investigation should be considered in the effect of extracts on NK cell activity which function mainly as anti-tumor activity.

The effects of mycotoxin mixtures showed various interactions. These data demonstrated that more emphasis should be placed on the interaction between mycotoxin mixtures rather than individually effect. According to the concept of immunosurveillance, immunosuppressive activity of mycotoxins might be one mechanism of cancer susceptibility. *C. asiatica* and *R. nasutus* that has immunostimulating activity could reduce the immunotoxicity of mycotoxins. Thus, this effect may reduce subsequent risk of development of cancer.