

Effect of *Tinospora cordifolia* Extract on Neutrophils, TNF α , and IFN γ Percentage in Balb/c Mice Infected with *Salmonella* *typhimurium*

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Abstract: Herbal medicine is still consumed by 80% populations in developing countries for primary health care. *Tinospora cordifolia* extracts are widely used as a system of traditional medicine for the treatment. *T. cordifolia* is a plant species that has a function as a natural immunomodulation. It increases the activity and function some components of nonspecific and specific immunity. The aim of the research is to know the effects of *T. cordifolia* extract on the immunity system and the regulation of neutrophil, TNF α , and IFN γ percentage. This study was conducted in Microbiological and Biomedical Laboratories, Faculty of Medicine, University of Brawijaya. There was 5 treatment groups namely the negative control group (C-), the positive control group mice (C+), and the mice group were injected with *S. typhimurium* and treated with 0.225(D1), 0.375(D2), 0.75(D3) mg/day *T. cordifolia* extract. The result showed that the highest average of neutrophil was in D3 treatment, and the lowest average was in D1 treatment. The highest average of TNF α and IFN γ were in C(+) treatment and the lowest average were in C(-) treatment. The levels of TNF α decreased in proportion to increase the dose administered on rats treated with *T. cordifolia* extract. The increasing doses of therapy were not accompanied by elevated levels of IFN γ . The conclusions are the percentage of neutrophil in the treatment group was higher than the control group, the percentage of IFN γ is increasing of the treatment group than the control group, and there is increasing of the treatment group than the control group.

Keywords: IFN γ , neutrophil, *Salmonella typhimurium*, *Tinospora cordifolia* extract, TNF α .

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