ABSTRACT

Expression of TLR-2, NF-kB, TNF-α, IFN-γ and TGF-β1 in lung tissue damaged on mice infected with Mycobacterium tuberculosis obtained of Methanol Extract Graftophyllum pictum L. Griff

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Introduction. Tuberculosis still the leading infection disease in the world. According to WHO report, it affected almost one third people in the world. It caused 2 millions death annually and almost 8 millions new people infected with this bacteria every year. On the other hand, there is no new drug for tuberculosis have been reported. Graftophyllum pictum L. Griff is a medicinal plant which able to treat inflammatory conditions and infection traditionally. The plant can reduced growth of Mycobacterium tuberculosis and influense the immune respons on mice were infected by Lipopolysaccharide of Gram positive bacteria.

Objectives. This research conducted to explain the mechanism of methanol extracts of Graftophyllum pictum L. Griff to inhibit the progression of lung tissue demaged by modulating expression of TLR-2, NF-kB, TNF-α, IFN-γ and TGF-β1 on pulmonary lung mice infected with Mycobacterium tuberculosis

Method. The research method is an experimental laboratory in mice. By using thirty male mice aged 8-12 week were randomly divided into 5 groups : control group 2 (K0 and K1) and 3 treatment groups (P1, P2 and P3). The group of K0 as a normal did not obtain methanol extracts of Graftophyllum pictum L. Griff and no infected of Mycobacterium tuberculosis. The group of K1, P1, P2 and P3 were infected by Mycobacterium tuberculosis using intratracheal method. The group of P1, P2 and P3 were obtain methanol extracts of Graftophyllum pictum L. Griff at 1,703 mg/kg bb, 3,406 mg/kg bb, 6,812 mg/kg bb, during 14 days orally. Expression of TLR-2, NF-kB, TNF-α, IFN-γ, TGF-β1 were evaluated by immunohistochemistry. The lung tissue demaged on mice was analized by histopathological.

The result. The results have shown that the methanol extracts of Graftophyllum pictum L. Griff have been able to increase significantly expression of TLR-2 (p=0,00), NF-kB (p=0,00), TNF-α (p=0,00), IFN-γ (p=0,00) and decrease expression of TGF-β (p=0,17) of mice lung tissue that infected by Mycobacterium tuberculosis. The methanol extracts Graftophyllum pictum L. Griff has reduced significantly lung tissue demaged of mice that infected with Mycobacterium tuberculosis (p=0,00). Correlation test showed a positive correlation between the methanol extracts of Graftophyllum pictum L. Griff with TLR-2, NF-kB, TNF-α, IFN-γ. Negative correlation between the methanol extracts of Graftophyllum pictum L. Griff with TGF-β and the damaging of mice lung tissue.

Conclusion. The methanol extracts of Graftophyllum pictum L. Griff have active ingredients to increase expression of TLR-2, NF-kB, TNF-α, IFN-γ and decrease expression of TGF-β1 and lung tissue demage in mice lung tissue that infected Mycobacterium tuberculosis.

Key words: Methanol extract of Graftophyllum pictum L. Griff, Mycobacterium tuberculosis, TLR-2, NF-kB, TNF-α, IFN-γ, TGF-β1, lung tissue demage