Anti-Inflammatory Activities of Extracts from Quassia Borneensis Noot. (Simaroubaceae)

Firdaus Kamarulzaman¹, Ahmad Rohi Ghazali¹,*, and Julenah Ag Nuddin²

¹ Biomedical Science Programme, School of Diagnostic & Applied Health Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, 50300, Kuala Lumpur, Malaysia; ² Faculty of Applied Sciences, Universiti Teknologi MARA, 88997, Kota Kinabalu, Sabah, Malaysia; E-mail: rohi@fskb.ukm.my

Simaroubaceae family had been reported to possess numerous biological activities due to the presence of quassinoids. This study was carried out to assess the potential anti-inflammatory properties of extracts from Quassia borneensis, an unexplored indigenous plant from Sabah. Bark and root samples of Q. borneensis were soxhlet or macerated in methanol and partitioned with n-hexane, chloroform and water to yield hexane, chloroform and aqueous extracts, respectively. Anti-inflammatory activity was evaluated from the production of nitric oxide following treatment of extracts on lipopolysaccharide-stimulated RAW 264.7 murine macrophage cells using Griess assay. Expression of inflammatory protein was detected by immunoblotting. Results showed that the chloroform extract of Q. borneensis root demonstrated the most potent inhibition of nitric oxide production with IC₅₀ 0.3 µg/ml. In conclusion, Q. borneensis possessed anti-inflammatory activity and have a potential to be further developed as chemopreventive agent.

Keywords: Quassia borneensis, Simaroubaceae, anti-inflammation, nitric oxide, Griess assay.