

Antioxidant, antityrosinase, anticholinesterase, and nitric oxide inhibition activities of three Malaysian *Macaranga* species.

ABSTRACT

The methanol extracts of three *Macaranga* species (*M. denticulata*, *M. pruinosa*, and *M. gigantea*) were screened to evaluate their total phenolic contents and activities as cholinesterase inhibitors, nitric oxide (NO) production inhibitors, tyrosinase inhibitors, and antioxidants. The bark of *M. denticulata* showed the highest total phenolic content (2682 mg gallic acid equivalent (GAE)/100 g) and free radical scavenging activity (IC₅₀ = 0.063 mg/mL). All of the samples inhibited linoleic acid peroxidation by greater than 80%, with the leaves of *M. gigantea* exhibiting the highest inhibition of 92.21%. Most of the samples exhibited significant antioxidant potential. The bark of *M. denticulata* and the leaves of both *M. pruinosa* and *M. gigantea* exhibited greater than 50% tyrosinase inhibition, with the bark of *M. denticulata* having the highest percentage of inhibition (68.7%). The bark and leaves of *M. denticulata* exhibited greater than 50% inhibition (73.82% and 54.50%, resp.) of the acetylcholinesterase enzyme (AChE), while none of the samples showed any significant inhibition of butyrylcholinesterase (BChE). Only the bark of *M. denticulata* and *M. gigantea* displayed greater than 50% inhibition of nitric oxide production in cells (81.79% and 56.51%, resp.). These bioactivities indicate that some *Macaranga* spp. have therapeutic potential in medicinal research.

Keyword: *Macaranga*; Methanol extracts; Bioactivities.