

**New constituent from *Podocarpus macrophyllus* var.
macrophyllus shows anti-tyrosinase effect and
regulates tyrosinase-related proteins and mRNA in
human epidermal melanocytes.**

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Abstract

A new biflavonoid, 2,3-dihydro-4',4'''-di-O-methylamentoflavone (5), and five known compounds, (-)-catechin (1), quercetin (2), 2,3-dihydrosciadopitysin (3), sciadopitysin (4), and isoginkgetin (6), were isolated from *Podocarpus macrophyllus* var. *macrophyllus* (Podocarpaceae). These compounds were evaluated their ability to inhibit cellular tyrosinase activity and for their melanin inhibitory activity in human epidermal melanocytes (HEMn). In the melanin synthesis assay, 2,3-dihydro-4',4'''-di-O-methylamentoflavone (5) showed a potent anti-tyrosinase effect with $IC_{50}=0.098$ mM in HEMn. It also significantly decreased both protein and mRNA levels of the tyrosinase-related protein-2 (TRP-2) by Western blot and quantitative real-time PCR (qRT-PCR) analysis. These findings suggest that the new compound, 2,3-dihydro-4',4'''-di-O-methylamentoflavone (5), is the most active component of *P. macrophyllus* var. *macrophyllus* in inhibiting pigmentation and that this inhibition is exerted through inhibition of transcription of the genes encoding TRP2.