Assessment of Enzyme Inhibitory and Antioxidant Activities of Lignans from *Taxus baccata* L.

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Phytochemical investigations of *Taxus baccata* L. by successive chromatographic methods resulted in the isolation of the lignans lariciresinol (1), taxiresinol (2), 3’-demethylisolariciresinol-9’-hydroxyisopropylether (3), isolariciresinol (4), and 3-demethylisolariciresinol (5) as well as taxoids. Compounds 1–5 were evaluated for their acetylcholinesterase (AChE), butyrylcholinesterase (BChE), and lipoxygenase (LOX) inhibitory activities, which play a role in the pathogenesis of Alzheimer’s disease (AD), by in vitro spectrophotometric methods, while they were also screened for their antioxidant capacity in 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging, ferrous ion-chelating effect, and ferric-reducing antioxidant power (FRAP) at 125, 250, 500, and 1000 μg ml⁻¹. All compounds exhibited a moderate inhibition against both BChE and LOX, whereas they were inactive towards AChE. The compounds displayed a great scavenging activity against DPPH especially at 500 and 1000 μg ml⁻¹. Besides, they were found to exert noteworthy reducing antioxidant power on ferric ions. In particular, the FRAP of compounds 2 (3.552 ± 0.02), 4 (3.021 ± 0.71), and 5 (3.533 ± 0.01) were as high as that of the reference chlorogenic acid (3.618 ± 0.01) at 1000 μg ml⁻¹. None of the compounds exhibited chelating ability against ferrous ions.

**Key words:** *Taxus baccata*, Lignans, Biological Activity