

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 g 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 g 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 g ml⁻¹. None of the compounds exhibited chelating ability against ferrous ions.

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