

An extract from stem of a Thai medicinal plant, *Alstonia macrophylla* (Apocynaceae) showed a significant inhibitory effect on acetylcholinesterase (AChE) determined by using Ellman assay. Four compounds (1-4) i.e. an indole alkaloid, macralstonine (1), a novel indole alkaloid, thungfaine (2), an iridoid glycoside, sweroside (3) and a novel secoiridoid glycoside, naresuanoside (4) were isolated. Naresuanoside showed moderate AChE and butyrylcholinesterase (BChE) inhibitory effects. Interestingly, this is the first time that secoiridoid glycoside is reported for cholinesterase inhibitory activity. In addition, the compound could inhibit the growth of human prostate cancer cells but showed no effect on human foreskin fibroblasts cells.