A149 Extracts of rhizomes of *Cyperus articulatus* is an antagonist at the NMDA receptors and an agonist at the $GABA_B$ receptors expressed by *Xenopus laevis* oocytes

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Cyperus articulatus is a marshland plant commonly used in Africa and Latin America to treat many diseases in traditional medicine (1,2). Extracts of rhizomes of *C. articulatus* have been shown to possess pharmacological activities (3,4,5). In these studies, the effect of the decoction and the water extract of *Cyperus articulatus* rhizomes were tested in some receptors [NMDA (h NMDA R1A/2A), non-NMDA (r GluR3), $GABA_B$ (R1b/R2) and potassium channels (Kir3)] expressed by Xenopus oocytes. Two electrodes (1-2 MΩ) voltage clamp experiments were performed with the membrane potential clamped to -70 mV. Water extract of the rhizomes of *C. articulatus* dose-dependently decreased the ionic current induced by the EC_{80} of glutamate through NMDA receptors. Concentration 0.3 mg/ml of water extract inhibited 57% of this current. In contrast, the decoction of *C. articulatus* could not antagonize current through non-NMDA receptors. Even concentration of 0.3 mg/ml induced very little current (27% of total ionic current induced by the EC_{100} of glutamate) through those receptors. These results are in accordance with the one obtain by Ngo Bum et al. (3) where the water extract of rhizomes of *C. articulatus* antagonized NMDA but not non-NMDA induced depolarisations in the rat cortical wedge preparation. In addition the water extract of rhizomes of *C. articulatus* dose-dependently induced an inward current in oocytes expressing heteromeric $GABA_B$ (R1b/R2) together with heteromultimeric G protein activated inward rectifying potassium channels (Kir3). Concentration 3 mg/ml induced 57% of the current induced by a saturating concentration of GABA. In conclusion, rhizomes of *C. articulatus* could contain compounds that possess NMDA antagonising and $GABA_B$ agonizing properties. Further studies that are ongoing in our laboratory could allow the isolation of NMDA antagonist in *C. articulatus*.

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A150 Coumarins having anti-amnestic activity from *Angelica gigas*

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Acetylcholinesterase (AChE) inhibitory activity–guided fractionation of *Angelica gigas* Nakai (Umbelliferae) led to the isolation of a new coumarin, peucedanone and eleven known coumarins. Among them, decursinol represented the highest inhibitory activity towards AChE *in vitro*. The study on their structure-activity relationships revealed that the cyclization of isoprenyl (IP) unit at C-6 of coumarin was essential for the AChE inhibitory activity (1). We evaluated the anti-amnestic activities of decursinol and its structural derivative, decursin, the major coumarin constituents of *Angelica gigas in vivo* using ICR mice with amnesia induced by scopolamine (1 mg/kg body weight, s.c.). Decursinol and decursin, when administered to mice at 1 and 5 mg/kg body weight i.p., significantly ameliorated scopolamine-induced amnesia as measured in the passive avoidance test (2). In contrast to *in vitro* study, decursin showed higher anti-amnestic activity than decursinol *in vivo*. Decursin (1 mg/kg body weight, i.p.) improved the spatial memory deficit of scopolamine-induced amnestic mice in the Morris water maze test (3). Moreover, decursin (1 mg/kg body weight, i.p.) significantly inhibited AChE activity by 34% ($P < 0.05$) of control in the hippocampus of treated mice. These results indicate that decursin may exert anti-amnestic activity *in vivo* through the inhibition of AChE activity in the hippocampus.

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