Abstract

Three derivatives of indole-3-carboxaldehyde with indole-3-acetic hydrazide and their copper(II) and nickel(II) complexes were synthesized. The Schiff base compounds were varied on the substituent where each compound holds a hydrogen, chlorine and bromine atom on the 5^{th} position of indole-3-carboxaldehyde. The structures of the ligands and their complexes were elucidated by various characterization methods. All compounds were screened for their biological effects on neuroprotective screening (*in vitro*), acute toxicity test (*in vivo*), ethanol-induced gastric ulcer (anti-ulcer) and glucose tolerance test (anti-diabetic). All compounds except bromine-containing compounds were not dose dependent while compounds with bromine displayed significant results, acting as inhibitory agents for ulcers at high dose (50mg/kg). They also revealed their potential effect in lowering blood glucose level at all doses tested. No abnormalities or mortality were found in mice within 24 hours but the cytotoxic effect on neuron NG108-15 cells was discovered when the cells were pretreated with 50ε g/ml of the compounds prepared.

Abstrak

Tiga terbitan indol-3-karboksaldehid dengan indol-3-asetik hidrazida dan kompleks kuprum(II) dan nikel(II) telah disintesis. Sebatian bes Schiff yang mempunyai kumpulan penukarganti yang berlainan pada atom karbon kelima indol-3-karboksaldehid telah digunakan. Struktur ligan dan kompleks bagi semua terbitan ligan telah dicirikan dengan menggunakan pelbagai kaedah pencirian struktur. Semua sebatian yang telah dicirikan telah digunakan untuk tujuan kajian terhadap sel neuron (*in vitro*), ujian toksisiti akut (*in vivo*), ulser perut disebabkan etanol (anti-ulser) dan ujian toleransi glukosa (anti-diabetik). Semua sebatian kecuali sebatian yang mengandungi bromin didapati tidak menunjukkan perbezaan antara dos yang digunakan sebaliknya sebatian yang mengandungi bromin bertindak sebagai agen perencat bagi ujian anti-ulser pada dos yang tinggi (50mg/kg) selain menunjukkan potensi dalam menurunkan paras glukosa dalam darah untuk semua dos yang diuji. Sebatian-sebatian kajian juga didapati tidak bersifat toksik terhadap tikus dalam jangka masa 24 jam tetapi bersifat sitotoksik terhadap sel neuron NG108-15 apabila digunakan pada kepekatan 50ε g/ml.