Indian Journal of Chemistry
Vol. 65, March 2026, pp. 227-235
DOI: 10.56042/ijc.v65i3.22128

Copper (II) complexes supported by phenyl selanyl ligands: DNA binding and molecular docking studies

P Moohambihai*[a], A Sivasubramanian[b] & R Maheswaran[c]

[a] Department of Chemistry, V V College of Engineering, Tisaiyanvilai 627 657, Tamil Nadu, India
[b] Department of Mechanical Engineering, V V College of Engineering, Tisaiyanvilai 627 657, Tamil Nadu, India
[c] Department of Mechanical Engineering, Mepco Schlenk Engineering College, Virudhunagar 626 005, Tamil Nadu, India
E-mail: ambikachem12@gmail.com

Received 29 July 2025; accepted (revised) 6 March 2026

Copper (II) complexes (**3a-d**) with (16E)-2,6-dimethyl-N-(2-phenylquinoline-4(1*H*)-ylidene)-5-(phenylselanyl) pyrimidine-4-amine ligands have been developed. They have been characterised by elemental analysis and several spectroscopic studies. Absorption spectra, fluroscence investigations, and viscosity tests reveal how the copper complexes interact with the calf thymus (CT-DNA). Furthermore, the ligand's ability to inhibit acetylcholinesterase (AChE) has been studied in order to establish its efficacy in the treatment of neurodegenerative diseases. Compared to normal Rivastigmine and Galantamine, the synthesised ligand **2c** shows selective inhibition (AChE and BuChE) with IC50 values of 0.18 and 3.03 μM. A molecular docking study has been carried out.

Keywords: Copper (II) complexes, Selenium, Acetylcholinesterase, Quinoline, Alzheimer's disease

Schiff bases bind redox active transition metal ions