

Bioactive Cu(II) and Zn(II) complexes with Mannich bases

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Cu(II) and Zn(II) complexes with various organic ligands are known to possess anticonvulsant, antiproliferative, anti-inflammatory, antiviral, antiparasitic, and antimicrobial activity. A higher antimicrobial effect of the complexes as compared with that of the initial ligands is achieved due to their higher lipophilicity resulting from complexation as well as to the influence of the metal ions on the cellular structure and processes. To produce effective antimicrobial agents, it is necessary to carry out further investigations of Cu(II) and Zn(II) with already known and novel ligands and to determine their structural, thermodynamic and pharmacological characteristics.

The process of complexation of Cu(II) и Zn(II) ions with Mannich bases in water-THF was investigated. It was found potentiometrically that complexes with the ratio $M : L = 1 : 2$, were formed, their stability constants were determined ($\beta = 11,78-14,26$). The complexes synthesized were shown to be neutral, amorphous and thermally stable. Their coordination polyhedra had the composition $[MN_2O_2]$ and square-planar or tetrahedral geometry (Figure). A high antifungal activity ($RI = 80-100\%$) of the metal complexes against moulds *Alternaria alternata*, *Fusarium spp.*, *Sclerotinia sclerotiorum* was established.

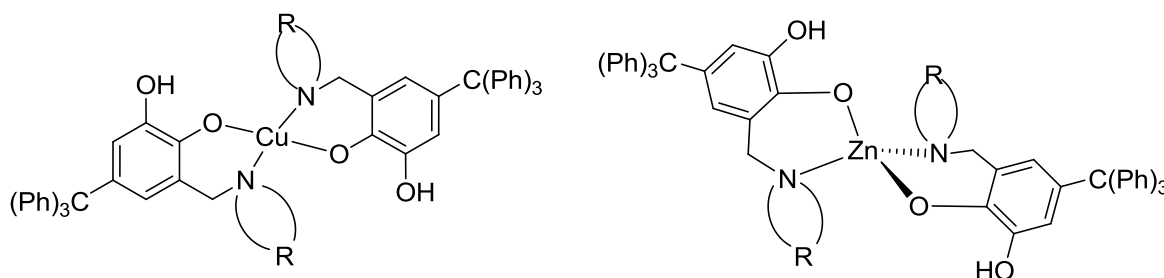


Fig. Structural schemes of the Cu(II) and Zn(II) complexes with the ligands HL^I–HL^V

References

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