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Abstract

Exploring the antifungal effect of Quinazolinone-Cu(II) complexes against yeast infections †

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Abstract: Yeast are an important group of single-celled microorganisms employed in the traditional fermentation, biotechnology and life science. However, some yeasts act as pathogens in humans, causing serious infections and even death. The other yeasts can cause spoilage of food and significant economic loss. Various preservatives are utilized to suppress yeast growth in food, and several antifungal medications are used to treat yeast infections. However, the increasing resistance of yeasts to commonly used organic compounds in both medicine and food industry, as well as the demand from users for safer and more effective substances, pose a challenge in the search for new drugs and preservatives. Quinazolinones and their transition-metal complexes represent versatile compounds with broad spectrum of biological activities. Thus, the aim of this study was the evaluation of biological properties of quinazolinone ligands and their copper complexes. Compounds were screened for antifungal potential against a panel of both pathogenic yeast species and the yeast species which cause food spoilage. The species examined included *Candida albicans*, *C. glabrata*, *C. parapsilosis*, *C. tropicalis*, *Pichia kudriavzevii* of the human origin, and a panel of yeasts which cause food spoilage, such as *P. membranifaciens*, *Zygosaccharomyces bailii*, *Z. rouxii*, and *Yarrowwia lipolytica.* Results showed that the Cu(II) complexes were much more effective than free ligands, and the most potent complex displayed strong inhibition activity towards 80% of all the tested strains. This study revealed that coordination with Cu(II) ion play an important role in enhancing the biological activity.

Keywords: copper(II) complex; quinazolinones; antifungal activity; yeast; Candida species

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