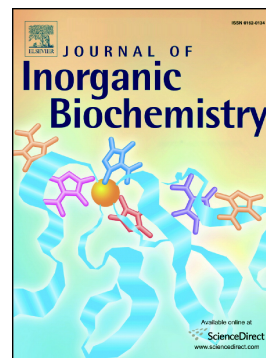


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A new Cu(II)-O-Carvacrotonate Complex: synthesis, characterization and biological activity

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Abstract

Herein, we report the first example of the synthesis of a novel type of Cu(II) complex based on a natural product ligand derived from carvacrol. The copper(II) complex $[\text{Cu}(\text{CDA})_2(\text{EtOH})]_2 \cdot 2\text{EtOH}$ (**1**, HDCA = O-carvacrotonic acid) has been synthesized and characterized by elemental analysis, IR spectroscopy, ESI-MS and single crystal X-ray analysis. Complex **1** and the carvacrotonic acid (**2**, HDCA) have been studied towards their antimicrobial and antiproliferative activities. For both compounds the antimicrobial activity was assessed against a panel of Gram-positive and Gram-negative bacteria and yeasts. The microdilution method allowed the determination of their Minimum Inhibitory Concentration (MIC) and minimum bactericidal concentration (MBC). Interestingly, both compounds seem to be more effective on yeasts rather than bacteria specially against *C. albicans*. Regarding the antimicrobial properties, the compounds appear to present a bacteriostatic behaviour, rather than bactericide. The antiproliferative effect of complex **1**, O-carvacrotonic acid (HDCA) **2** and carvacrol (CA) **3** used as a reference to compare their antitumoral activity, was examined in 4 human tumor cell lines (ovarian carcinoma (A2780), colorectal carcinoma

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