

NOBLE METAL COMPLEXES WITH PYRIDINE-DERIVED LIGANDS: A NOVEL CLASS OF ANTIMICROBIALS

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In the course of the past decades Antimicrobial Resistance (AMR) has emerged as a major and urgent public health problems worldwide. In an effort to find novel antibiotics and antimycotics, recent studies have revealed that metal complexes with nitrogen donors show promising biological effects both in vitro and in vivo, deserving attention as a new class of antimicrobial agents. [1]

Following our longstanding interest in the field of noble metal complexes with nitrogen donors [2] we started a large-scale antimicrobial investigation on a series of Pt(II), Pd(II) and Au(III) complexes with pyridine-derived ligands, such as variously substituted pyridines and 2,2'-bipyridines, including *inter alia*, 3-substituted 1-(2-pyridyl)imidazo[1,5-a]pyridines and 2-pyridyl-1,2,3-triazole “click” ligands.

The principal objective of this work is the design, synthesis and biological screening of complexes with different structural moieties, such as chelated N²N complexes, classical N²C, terdentate N³N²C, and rollover cyclometalated complexes, as reported in Figure 1.

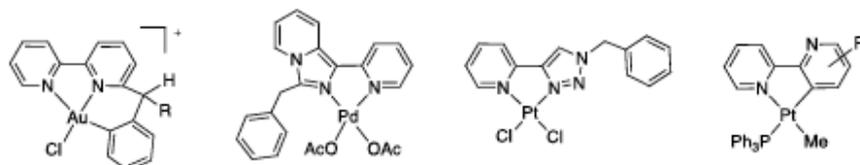


Figure 1: A few examples of the studied complexes

The complexes were tested on Gram-positive (*S. pyogenes* DSM 20565, *S. aureus* DSM 1104) and Gram-negative (*K. pneumoniae* DSM 681, *E. coli* DSM 1103, *P. aeruginosa* DSM 1117) bacteria, as well as a yeast (*C. albicans* DSM 1386), revealing promising antimicrobial and antibiofilm activity. The obtained results will be reported and discussed.

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