

Pathogenic Gram-positive bacteria are highly sensitive to triphenylphosphanegold(O-alkylthiocarbamates), Ph₃PAu[SC(OR)=N(p-tolyl)] (R = Me, Et and iPr)

ABSTRACT

The phosphane-gold(I) thiocarbamides, Ph₃PAu{SC(OR)=NC₆H₄Me-4} for R = Me (1), Et (2) and iPr (3), have been shown to have essentially linear gold atom coordination geometries defined by phosphane-P and thiolate-S atoms, and exhibit minimum inhibitory concentration (MIC) values in the range of 1637 g/ml against four Gram-positive bacteria, namely *Bacillus cereus*, *Enterococcus faecalis*, *Enterococcus faecium* and *Staphylococcus aureus*; compounds 163 are less potent against a broad panel of 16 Gram-negative bacteria. As the minimum bactericidal concentration values were quite similar to the MIC values, compounds 163 are effective bactericidal agents. The specific action against the four Gram-positive bacteria suggests they function by inhibition of peptidoglycan synthesis.

Keyword: Antimicrobial activity; Gold(I) compounds; Gram-positive bacteria; Metal-based drugs; Phosphanegold thiolates; Thiocarbamides