

Comparative Study of antibacterial activity of some complexes of Ni(II) and Pd(II) with 1 – substituted phenyltetrazoline – 5 – thione with and without triphenylphosphine

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Date of Submission: 15-12-2020

Date of Acceptance: 30-12-2020

ABSTRACT: Some complexes of Ni(II) and Pd(II) with 1 – substituted phenyltetrazoline – 5 – thione with and without triphenylphosphine are taken to know its antibacterial activity have been tested against bacteria E.coli and S.aureus.

Key Words: Ni(II), Pd(II), 1-substituted phenyltetrazoline – thione, 1-O-PT5TH(1-ortho-phenyltetrazolinne-5-thione), triphenylphosphine, MIC (Maximum Inhibition Constant), SM(Streptomycin – Standard drug against bacteria)

I. INTRODUCTION

Bacteria E.oli and S.aureus are treated against the Ni(II) complexes¹ and Pd(II) complexes having 1-phenyltetrazoline-5-thione as a ligand with and without triphenylphosphine². Complexes of Ni(II) and Pd(II) show strong inhibition against bacteria which were being supported by MIC values³⁻⁴. They show different types of elevated shapes against different bacteria used.

II. EXPERIMENTAL

Following Ni(II) and Pd(II) complexes⁵ with and without triphenylphosphine⁶ with 1-substituted phenyltetrazoline -5-thione at meta-positions are

being used as antibacterial agents⁷ against bacteria E.coli and S.aureus are formed .

1. [Ni(1-O-CH(CH₃)₂PT5TH)₂Cl₂] .4H₂O
2. [Ni(1-O-CH(CH₃)₂ PT5TH) (PPh₃) Cl₂] .C₂H₅OH
3. [Pd(1-O-(OCH₃) - PT5TH)₂Cl₂] .H₂O
4. [Pd(1-O -(OCH₃) -PT5TH)₂ (PPh₃) Cl₂]

Above mentioned Ni(II) and Pd(II) complexes having ligand 1-phenyltetrazoline-5-thione with and without triphenylphosphine at ortho-positions each of volume 20µL in different discs against bacteria were tested .

III. RESULTS AND DISCUSSION

Complexes of Ni(II) and Pd(II) with 1-substituted phenyltetrazoline-5-thione with and without triphenylphosphine at ortho - positions were screened against E.coli and S.aureus⁸.

E.coli and S.aureus species are studied at 100ppm and 200ppm respectively for about 96hrs. After inoculation for 96hrs, the inhibition zone⁹ formed around each filter paper were measured at room temperature. Table -1 shows the aforesaid result.

Table – 1(Antibacterial Activity)

Complexes	E.coli	E.coli	S.aures	S.aures
	100ppm	200ppm	200ppm	100ppm
1. [Pd(1-O-(OCH ₃) - PT5TH) ₂ Cl ₂] .H ₂ O	+	++	+++	++
2. [Pd(1-O -(OCH ₃) -PT5TH) ₂ (PPh ₃) Cl ₂]	++	+++	+++	++
3. [Ni (1-O-CH(CH ₃) ₂ PT5TH) ₂ Cl ₂] .4H ₂ O	-	+	++	+

4. [Ni(1-O-CH(CH ₃) ₂ PT5TH) (PPh ₃) Cl ₂] .C ₂ H ₅ OH	+	++	++	++
SM	+++	++++	++++	+++

SM = Streptomycin (Standard Drug); Inhibition diameter in mm; (-) Not effected or nil; (++) 5-12mm ;(+++) 20-24mm ;(++++) 24-30mm.

IV. CONCLUSION

Complexes of Ni(II)andPd(II) show antibacterial activities¹⁰ which increases with increase in concentration. At higher concentration , complexes ofNi(II)and Pd(II) are very much active against bacteriaand they are closer to activity of the standard drug Streptomycin¹¹⁻¹³ . Against theE.coli and S.aureusNi(II)and Pd(II) complexes withtriphenylphosphine are much more active than the complex of Pd(II) and Ni(II) withouttriphenylphosphine .

V. ACKNOWLEDGEMENT

We are very much grateful and thankful to my source of inspiration late, Dr.ManojRanjan , Department of Chemistry , Science College ,Patna University ,Patna .

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