

Antibacterial studies of Th(IV) complexes with 1-para and 1-ortho – substituted tetrazoline-5-thione ligands at $P^H < 7$

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-----ABSTRACT:-----

Some Th(IV) complexes with 1-para and 1-ortho substituted tetrazoline-5-thione at $P^H < 7$ have tested as antibacterial agents.

Keywords Th(IV), 1-p-cl-PT5TH(1-para-chlorophenyltetrazoline-5-thione), 1-o-cl-PT5TH(1-ortho-chlorophenyltetrazoline-5-thione), zone of inhibition.

Date of Submission: 24-01-2019

Date of acceptance: 08-02-2019

I. RESULT AND DISCUSSION

Antibacterial activities are evaluated against E.coli and S.aureus of two para-substituted and one ortho-substituted Th(IV) complexes.

- (1) $[Th(1-o-cl-PT5TH)_2(H_2O)_2Cl_2]$ P^H Range- 5-6
 (2) $[Th(1-p-cl-PT5TH)_2Cl_4]$ P^H Range- 1-2
 (3) $[Th(1-p-cl-PT5TH)_2(H_2O)_2Cl_2]$ P^H Range- 1-2

$[Th(1-p-cl-PT5TH)_2Cl_4]$ shows zone of inhibition (9-12)nm and (20-24)nm against E.coli and S.aureus at 25ppm and 50ppm respectively . While $[Th(1-p-cl-PT5TH)_2(H_2O)_2Cl_2]$ shows (9-12)nm against E.coli and (9-12)nm and (20-24)nm against S.aureus at 25ppm and 50ppm respectively.

$[Th(1-o-cl-PT5TH)_2(H_2O)_2Cl_2]$ shows zone of inhibition nil and (5-12)nm against E.coli and S.aureus at 25ppm and 50ppm respectively .

Table -1 –Antibacterial activities of complexes against various bacteria at different concentrations (ppm)

Bacteria → Complexes	E.coli		S.aureus	
	25ppm	50ppm	25ppm	50ppm
$[Th(1-p-cl-PT5TH)_2Cl_4]$	++	+++	++	+++
$[Th(1-o-cl-PT5TH)_2(H_2O)_2Cl_2]$	-	++	-	++
$[Th(1-p-cl-PT5TH)_2(H_2O)_2Cl_2]$	++	++	++	+++
SM	+++	++++	+++	++++

or, nil; (++)9-12nm; (+++)20-24nm; (++++)24-30nm,

SM= streptomycin (standard); Inhibition diameter is ;mm(-)not effective

II. CONCLUSION

para –substituted complexes of Th(IV)are more effective than ortho-substituted complexes against bacteria E.coli and S.aureus at 25ppm and 50ppm in acidic P^H .

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Santosh Kumar" Antibacterial studies of Th(IV) complexes with 1-para and 1-ortho – substituted tetrazoline-5-thione ligands at PH < 7" The International Journal of Engineering and Science (IJES), 8.2 (2019): 01-02