

Full Paper

***N*-3,5-二溴亚水杨基- α -氨基酸二有机锡配合物的合成、表征及生物活性**田来进^{*a}, 孙玉希^a, 郑晓亮^b, 刘希杰^c, 于游^a, 刘雪莉^b, 钱伯初^b^a曲阜师范大学化学系, 曲阜, 山东 273165^b浙江药学院药物研究所, 杭州, 浙江310013^c中科院北京化学所, 北京100080

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摘要 利用二有机锡氯化物和现场形成的*N*-3,5-二溴亚水杨基- α -氨基酸钾反应合成了相应的二有机锡配合物 $R\zeta_2Sn(2-O-3,5-Br_2C_6H_2CH=NCHR\text{COO})(R=H, Me, i-Pr, Bz; R\zeta=n-Bu,$ Cy), 并通过元素分析、IR和NMR (¹H、¹³C及¹¹⁹Sn)进行了表征。测定了*n*-Bu₂Sn(2-O-3,5-Br₂C₆H₂CH=NCHR\text{COO})(R = *i*-Pr, Bz)和Cy₂Sn(2-O-3,5-Br₂C₆H₂CH=NCHR\text{COO})(R=Me, Bz)的晶体结构,

结果表明配合物为畸变三角双锥构型,

中心锡原子和该三齿配体形成了一五员螯合环和一六员螯合环。生物试验结果显示化合物对三种人癌细胞

(HeLa、CoLo205和MCF-7) 均有较好的体外抗癌活性, 对大肠杆菌和金黄色葡萄球菌有中等的抗菌活性。

关键词 [有机锡配合物](#), [\$\alpha\$ -氨基酸](#), [抗癌活性](#), [X-射线晶体结构](#)

分类号

Synthesis, Characterization and Biological Activity of Diorganotin(IV) Complexes of *N*-(3,5-Dibromo-salicylidene)- α -amino AcidTIAN Lai-Jin^{*1}, SUN Yu-Xi¹, ZHENG Xiao-Liang², LIU Xi-Jie³, YU You¹, LIU Xue-Li², QIAN Bo-Chu²¹ Department of Chemistry, Qufu Normal University, Qufu, Shandong 273165, China ² Institute of Materia Medica, Zhejiang Academy of Medical Science, Hangzhou, Zhejiang 310013, China ³ Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, China

Abstract The diorganotin(IV) complexes of *N*-(3,5-dibromosalicylidene)- α -amino acid, $R_2Sn(2-O-3,5-Br_2C_6H_2CH=NCHR\text{COO})(\text{where } R=H, Me, i-Pr, Bz; R'=n-Bu, Cy)$, were synthesized by the reactions of diorganotin dichlorides with *in situ* formed potassium salt of *N*-(3,5-dibromosalicylidene)- α -amino acid and characterized by elemental analysis, IR and NMR (¹H, ¹³C and ¹¹⁹Sn) spectra. The crystal structures of *n*-Bu₂Sn(2-O-3,5-Br₂C₆H₂CH=NCHR\text{COO})(R = *i*-Pr, Bz) and Cy₂Sn(2-O-3,5-Br₂C₆H₂CH=NCHR\text{COO})(R=Me, Bz) were determined by X-ray single crystal diffraction and showed that the tin atoms are in a distorted trigonal bipyramidal geometry to form five- and six-membered chelate rings with the tridentate ligand. Bioassay results indicated that the compounds possess better *in vitro* antitumour activity against three human tumour cell lines, HeLa, CoLo205 and MCF-7, than *cis*-platin and moderate anti-bacterial activity against two bacteria, *E. coli* and *S. aureus*.

Key words [organotin complex](#) [\$\alpha\$ -amino acid](#) [antitumour activity](#) [X-ray crystal structure](#)

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