

## COMMUNICATIONS

稀土与*N*-对甲苯磺酰甘氨酸和邻菲咯啉配合物的合成与晶体结构

张漫波<sup>1</sup>, 胡瑞祥<sup>1</sup>, 梁福沛<sup>\*1</sup>, 马录芳<sup>1</sup>, 周忠远<sup>2</sup>

<sup>1</sup>广西师范大学化学系, 桂林 541004

<sup>2</sup>香港理工大学ABCT系, 香港特别行政区

收稿日期 2005-3-16 修回日期 2005-6-21 网络版发布日期 接受日期

**摘要** 合成了镧系元素铕, 铈和镱的配合物 $[\text{Eu}_2(\text{TsGly})_6(\text{phen})_2(\text{H}_2\text{O})_2]\mathbf{1}$ ,  $[\text{Ln}(\text{TsGly})_2(\text{phen})_2(\text{H}_2\text{O})_2]\text{Cl}\cdot 2\text{H}_2\text{O}$  (Ln=Er2a, Yb 2b) (TsGly =*N*-对甲苯磺酰甘氨酸根, phen = 1,10-邻菲咯啉)。用X-射线单晶衍射测定了配合物 $\mathbf{1}$ 和  $\mathbf{2b}$ 的结构, 晶体学数据: 配合物 $\mathbf{1}$ 为单斜晶系,  $P2_1/n$ 空间群,  $a = 1.29791(16)$ ,  $b = 1.9034(2)$ ,  $c = 1.7596(2)$  nm,  $\beta = 93.410(3)^\circ$ ,  $V = 4.3394(9)\text{nm}^3$ ,  $Z = 4$ ,  $R_1 = 0.0326$ ,  $wR_2 = 0.0771$ , 而配合物 $\mathbf{2b}$ 则属三斜晶系,  $P\bar{1}$ 空间群,  $a = 1.2674(2)$ ,  $b = 1.4405(2)$ ,  $c = 1.4809(3)$  nm,  $\alpha = 113.256(3)^\circ$ ,  $\beta = 108.253(3)^\circ$ ,  $\gamma = 94.739(3)^\circ$ ,  $V = 2.2922(7)\text{nm}^3$ ,  $Z = 2$ ,  $R_1 = 0.0292$ ,  $wR_2 = 0.0669$ 。配合物 $\mathbf{1}$ 为双核结构, 配合物 $\mathbf{2b}$ 为少见的单核稀土氨基酸配合物。

**关键词** [镧系元素](#), [N-对甲苯磺酰甘氨酸](#), [邻菲咯啉](#), [晶体结构](#)

分类号

## Synthesis and Structures of Lanthanide Complexes of *N-p*-Tolylsulfonylglycinate and 1,10-Phenanthroline

ZHANG Man-Bo<sup>1</sup>, HU Rui-Xiang<sup>1</sup>, LIANG Fu-Pei<sup>\*1</sup>, MA Lu-Fang<sup>1</sup>, ZHOU Zhong-Yuan<sup>2</sup>

<sup>1</sup>Department of Chemistry, Guangxi Normal University, Guilin, Guangxi, 541004 China

<sup>2</sup>Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University, Hong Kong, China

**Abstract** Three new lanthanide complexes with the formulae  $[\text{Eu}_2(\text{TsGly})_6(\text{phen})_2(\text{H}_2\text{O})_2]\mathbf{1}$ ,  $[\text{Ln}(\text{TsGly})_2(\text{phen})_2(\text{H}_2\text{O})_2]\text{Cl}\cdot 2\text{H}_2\text{O}$  [Ln= Er (**2a**) and Yb (**2b**), TsGly = *N-p*-tolylsulfonylglycinate, phen = 1,10-phenanthroline] were synthesized. Crystallographic data for **1**: monoclinic,  $P2_1/n$ ,  $a = 1.29791(16)$  nm,  $b = 1.9034(2)$  nm,  $c = 1.7596(2)$  nm,  $\beta = 93.410(3)^\circ$ ,  $V = 4.3394(9)\text{nm}^3$ ,  $Z = 4$ ,  $R_1 = 0.0326$ ,  $wR_2 = 0.0771$ ; and for **2b**: triclinic,  $P\bar{1}$ ,  $a = 1.2674(2)$  nm,  $b = 1.4405(2)$  nm,  $c = 1.4809(3)$  nm,  $\alpha = 113.256(3)^\circ$ ,  $\beta = 108.253(3)^\circ$ ,  $\gamma = 94.739(3)^\circ$ ,  $V = 2.2922(7)\text{nm}^3$ ,  $Z = 2$ ,  $R_1 = 0.0292$ ,  $wR_2 = 0.0669$ . X-ray diffractational analysis reveals that compound **1** adopts dinuclear structure with fourfold bridging TsGly ligands between the Eu(III) centers, while compound **2b** features an unusual mononuclear structure.

**Key words** [lanthanide](#) [N-protected amino acid](#) [1](#) [10-phenanthroline](#) [crystal structure](#)

DOI:

通讯作者 梁福沛 [fliangoffice@yahoo.com](mailto:fliangoffice@yahoo.com)

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(0KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“镧系元素,N-对甲苯磺酰甘氨酸,邻菲咯啉,晶体结构”的相关文章](#)

▶ [本文作者相关文章](#)

- [张漫波](#)
- [胡瑞祥](#)
- [梁福沛](#)
- [马录芳](#)
- [周忠远](#)