

Once again on the existence of “*L*-alanine lithium chloride”

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Abstract

We prove that a so-called “unidirectional grown *L*-alanine lithium chloride single crystal” reported by Parasuraman et al. (Optik 126 (2015) 4516-4522) is *L*-alanine.

Keywords: *L*-alanine lithium chloride; *L*-alanine; single crystal; *L*-asparagine lithium chloride

Comment

In a recent publication on a so called 1,3 diglycyl thiourea crystal [1] we reported that erroneous articles not only lead to their subsequent correction, but also to the emergence of new erroneous publications. A report by Parasuraman et al. [2] describing the “unidirectional grown *L*-alanine lithium chloride single crystal” is an example of a new erroneous publication despite a literature correction on the “*L*-alanine lithium chloride” crystal [3]. Two claims of growth of the so called “*L*-alanine lithium chloride” crystal by slow evaporation method using equimolar amounts of *L*-alanine and lithium chloride were shown to be erroneous in view of an inappropriate space group for “*L*-alanine lithium chloride” and a perfect matching of IR spectrum with that of *L*-alanine [3]. In addition, it was shown that a so called “bis *L*-alanine lithium chloride” is also *L*-alanine indicating that in the reaction system *L*-alanine/lithium chloride/water no new crystal can be isolated.

Parasuraman et al. report to have grown a bulk single crystal of *L*-alanine lithium chloride (LAL) crystal. The authors are so sure of having grown this LAL crystal that they reported „*Single crystal X-ray diffraction study reveals that LAL crystallizes into orthorhombic system with the space group Pna2₁*“ without realising that a solid containing an optically active component like *L*-alanine cannot

crystallize in a space group containing glide planes. Since the same error about space group was pointed out in the correction by Petrosyan et al. [3], it is quite obvious that the authors did not refine the structure to determine any space group as evidenced by the absence of a CIF file; they simply wrote the space group as $Pna2_1$ just to indicate that the lattice parameters ($a = 5.792 \text{ \AA}$; $b = 5.872 \text{ \AA}$ and $c = 12.426 \text{ \AA}$) obtained by them were in agreement with the reported value of Ref. 19 cited by them, which has already been proved to be erroneous. We opine that the cell parameters correspond to *L*-alanine (with interchanged axes) based on the reported cell for *L*-alanine by Simpson and Marsh [4]. The same error was made *e.g.* by the authors of [5], who claim to have grown the crystal of *L*-asparagine lithium chloride with cell parameters: $a=5.46 \text{ \AA}$, $b=7.93 \text{ \AA}$, $c=13.29 \text{ \AA}$ and space group $Pna2_1$.

The growth of this dubious LAL crystal raises serious concern as this can be explained due to i) the failure of a literature survey by Parasuraman et al. on *L*-alanine lithium chloride ii) formulating compounds based on unit cell without structure determination iii) the oversight of the reviewers to recommend publication of this erroneous paper despite a published comment on the said crystal.

We do hope that the present comment will suspend future publications on this so called “*L*-alanine lithium chloride” crystal which is actually *L*-alanine.

References

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