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SHORT COMMUNICATION

$Ph_3CCOOSnPh_3.Ph_3PO$ AND $Ph_3CCOOSnPh_3.Ph_3AsO$: SYNTHESIS AND INFRARED STUDY

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Abstract: The mixture of ethanolic solutions of $Ph_3CCOOSnPh_3$ and Ph_3PO or Ph_3AsO gives $Ph_3CCOOSnPh_3.Ph_3PO$ and $Ph_3CCOOSnPh_3.Ph_3AsO$ adducts which have been characterized by infrared spectroscopy. A discrete structure is suggested for both, the environment around the tin centre being trigonal bipyramidal, the triphenylacetate anion behaving as a mondentate ligand

Keywords: *discrete structure, infrared spectroscopy, mondentate ligand, trigonal bipyramidal environment*

INTRODUCTION

The various applications found for molecules belonging to organotin (medicine, industry….) [1-4] are the reason of the focus of several research teams involving our in the seek of new molecules of this family [5]. We have initiated here the study of the interactions between $Ph_3CCOOSnPh_3$ and Ph_3PO or Ph_3AsO which have yielded the studied adducts. The infrared study has been carried and structures suggested on the basis of the spectroscopic data.

MATERIALS AND METHODS

$Ph_3CCOOSnPh_3$ has been obtained as a precipitate on mixing Ph_3CCOOH with $SnPh_3OH$ in ethanol. When ethanolic solutions of $Ph_3CCOOSnPh_3$ and Ph_3PO or Ph_3AsO are mixed in 1:1 ratio, a white powder is obtained after slow solvent evaporation. The analytical data reported below, allow to suggest the following formulae [% calculated (% found)]:
$Ph_3CCOOSnPh_3.Ph_3PO$ - **% C**: 71.72 (72.02), **% H**: 5.12 (4.79);
$Ph_3CCOOSnPh_3.Ph_3AsO$ - **% C**: 70.02 (69.99), **% H**: 4.68 (4.76).
The elemental analyses were performed by either the Microanalyses Centre – University of Bath- UK**.** The infrared spectra have been recorded at the University of Cheikh Anta Diop (Dakar-Sénégal) by means of a Bruker FT-IR spectrometer, the sample being as Nujol mulls, the windows being CsI;. Infrared data are given in cm^{-1} IR abbreviations: (br) broad, (vs) very strong (s) strong, (m) medium. The chemicals were purchased from Aldrich and used as such.

RESULTS AND DISCUSSION

Let us consider the infrared data this data $\upsilon asCOO^-$ 1637(s), 1592 (m), $\upsilon sCOO^-$ 1311(s). The shift of υ(PO) from 1190cm^{-1} to 1162 cm^{-1} and the shift of υ(AsO) from 880cm^{-1} to 864 cm^{-1} is an indication of the coordination of the ligands.
The suggested structure is discrete with a monodentate ligand and anion. The environment around the tin centre is trigonal bipyramidal (Figures 1a and 1b).

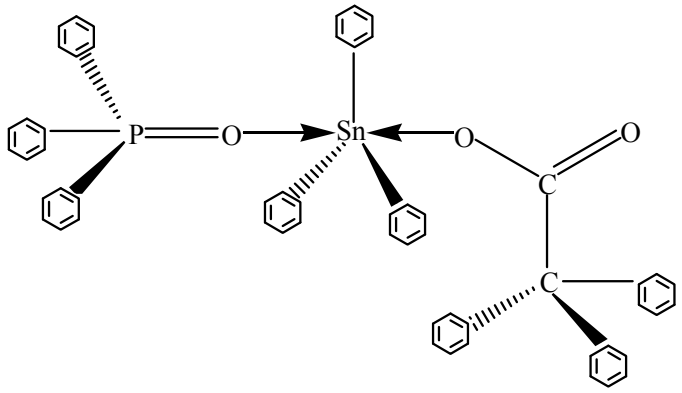

Figure 1a. *Proposed structure for the compound $Ph_3CCOOSnPh_3.Ph_3PO$*

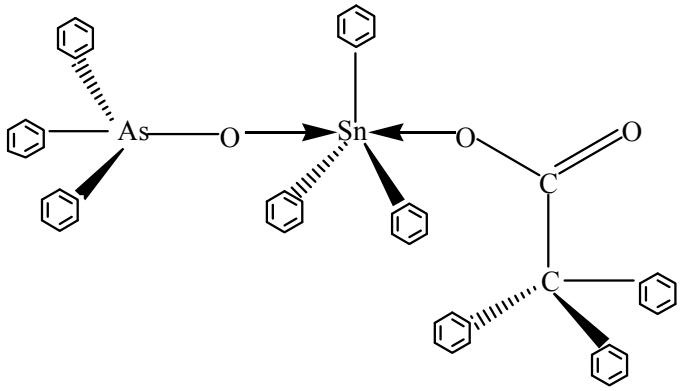

Figure 1b. *Proposed structure for the compound $Ph_3CCOOSnPh_3.Ph_3AsO$*

CONCLUSION

The studied adducts have a discrete structure with a $SnPh_3$ residue transcoordinated by the Lewis base and the anions behaving both as unidentate ligands. The environment around the tin centre is trigonal bipyramidal.

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