REACTIONS OF STANNYLACETIC ACID DERIVATIVES WITH LEAD TETRAACETATE

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On oxidation of organometallic compounds with lead tetraacetate, organic acetates are usually obtained [1], but organotin compounds, with a rare exception [2], were not used in this reaction.

The reaction of functionally substituted derivatives of organotin compounds R_3SnCH_2X (R = Bu, X = CO_2Et (I); R = Ph, X = CO_2Et (II); R = Bu, X = CO_2Me (III); R = Bu, X = CO_2All (IV); R = Et, X = $CONMe_2$ (V); R = Et, X = CN (VI)) with $Pb(OAc)_4$ proceeds with difficulty. The reaction proceeds readily only in the case of $PhCH(SnEt_3)CO_2Et$ (CH_2Cl_2, 20°C, 1 h), and $PhCH(OAc)CO_2Et$ formed was isolated in a 76% yield. However, we found [3] that in the presence of a catalyst for the reactions of these compounds with electrophilic agents, $R_3'SnY$ (R' = Bu, Y = I (VII); R' = Ph, Y = I (VIII); R' = Me, Y = OAc (IX)), the oxidation proceeds readily and the corresponding acetates are obtained in good yields

$$R_3SnCH_2X + Pb(OAc)_4 \xrightarrow[CH_2Cl_2\text{–HMFA, 10:1}]{R_3'SnY,\ 20^\circ} AcOCH_2X$$

Given are R_3SnCH_2X, R_3SnY, time of reaction, yield of $AcOCH_2X$ (GLC): (I), (VII), 10 min, 97%; (II), (VIII), 20 min, 94%; (III), (IX), 2 h, 92%; (IV), (IX), 3 h, 83%; (V), (IX), 1 h, 85%; (VI), (IX), 2 h, 72%.

If we take into account the accessibility of the stannylated α-functionally substituted compounds [4], the reaction studied can be recommended for the synthesis of the corresponding α-acetoxy derivatives.

LITERATURE CITED

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