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SHORT COMMUNICATIONS

Reaction of Diaryl Telluroxides with HBF_4*

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We previously showed [1] that diaryl telluroxides react with an equimolar amount of perchloric acid to give diaryl(hydroxy)telluronium perchlorates $Ar_2\overset{+}{T}e(OH)\,ClO_4^-$ in high yields. However, we failed to obtain in a similar way the corresponding tetrafluoroborates. The reaction of diphenyl telluroxide (**Ia**) with HBF_4 at a molar ratio of 1:1 in a mixture of 2-propanol with water gave 47% of diphenyltellurium difluoride (**IIa**). In the presence of 3 equiv of HBF_4 the yield of difluoride **IIa** attained 78%. The reactions of telluroxides **Ia**–**Id** with HBF_4 are accompanied by decomposition of the BF_4^- ion, and the mechanism of this process is not clear.

$$\underset{\textbf{Ia–Id}}{(RC_6H_4)_2TeO} + HBF_4 \longrightarrow \underset{\textbf{IIa–IId}}{(RC_6H_4)_2TeF_2}$$

R = H (**a**), 4-Me (**b**), 4-MeO (**c**), 4-EtO (**d**).

Decomposition of BF_4^- ion was observed previously [2] in the reaction of 3-chlorotelluro-1,3-diphenyl-2-propen-1-one ClTe(Ph)C=CHCOPh with $AgBF_4$, which resulted in formation of 33% of the corresponding fluoride FTe(Ph)C=CHCOPh. The reaction of diaryl telluroxides with HBF_4 supplements previously known methods for preparation of diaryl tellurides: exchange reactions of dihalodiaryltellurium with AgF [3, 4], oxidation of diaryl ditellurides with fluorine [5] or sulfur tetrafluoride [6], and reaction of diaryl telluroxides with HF [7].

The melting points of products **IIa**–**IId** coincided with those reported in the literature. Compounds **IIb**–**IId** characteristically show in the ^1H NMR spectra a double *AA′BB′* pattern, which is consistent with their structure.

Diphenyltellurium difluoride (IIa). A solution of 8.1 g of 33% HBF_4 (containing 0.03 mol of the acid) was added dropwise with stirring and cooling on an ice bath to a solution of 2.98 g (0.01 mol) of diphenyl telluroxide in 15 ml of 2-propanol. When the addition was complete, crystals of difluoride **IIa** were filtered off, washed with ether, and dried. Yield 2.5 g (78%). Colorless crystals, mp 153–154°C (from methanol; published data [3]: mp 154°C.

Bis(4-methylphenyl)tellurium difluoride (**IIb**), yield 75%, colorless crystals, mp 163–164°C (from methanol; published data [7]: mp 163°C; bis(4-methoxyphenyl)tellurium difluoride (**IIc**), yield 66%, colorless crystals, mp 129–130°C (from methanol); published data [6]: mp 131°C; and bis(4-ethoxyphenyl)tellurium difluoride (**IId**), yield 71%, colorless crystals, mp 170–171°C (from benzene–petroleum ether); published data [4]: mp 169–170°C, were synthesized in a similar way.

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