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Preparation and Chemical Properties of Aryl Benzyl Tellurides

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Key words: tellurides; synthesis of aryl benzyl tellurides; oxidation of aryl benzyl tellurides

Abstract: In this paper we describe a systematic preparation and oxidation of several aryl benzyl tellurides.

In the past few years we have been interested in the development of new reagents containing tellurium and their applications in organic synthesis[1].

In 1984 we reported a new methodology for the synthesis of alkyl aryl tellurides under phase transfer conditions and we mentioned that aryl benzyl and aryl allyl tellurides were unstable, affording unsaturated carbonylic compounds, free of tellurium[2]. One year later, Uemura[3] and co-workers found similar results, studying the chemical properties of three examples of alkyl allyl tellurides under oxidative conditions.

In this paper we report our observations concerning to the preparation and chemical properties of aryl benzyl tellurides. Such compounds were prepared from the *in situ* alkylation of aryltellurolate anion with the appropriate benzyl halide. The workup of the resulting aryl benzyl telluride followed by exposure to atmospheric air and ambient light, led to aromatic carbonyl compounds, usually, as the major isolated product. We believe that these reactions follow the same mechanism that was proposed for the oxidation, in similar conditions, of benzyl telluro cyanate[4,5].

The yields and product ratios are shown in the Table 1[6].

Table 1[a] - Aryl Benzyl Tellurides and Oxidation Products[6].

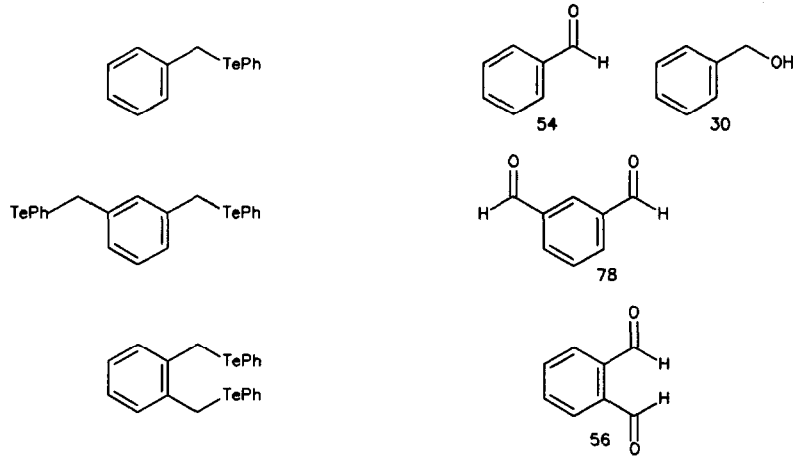
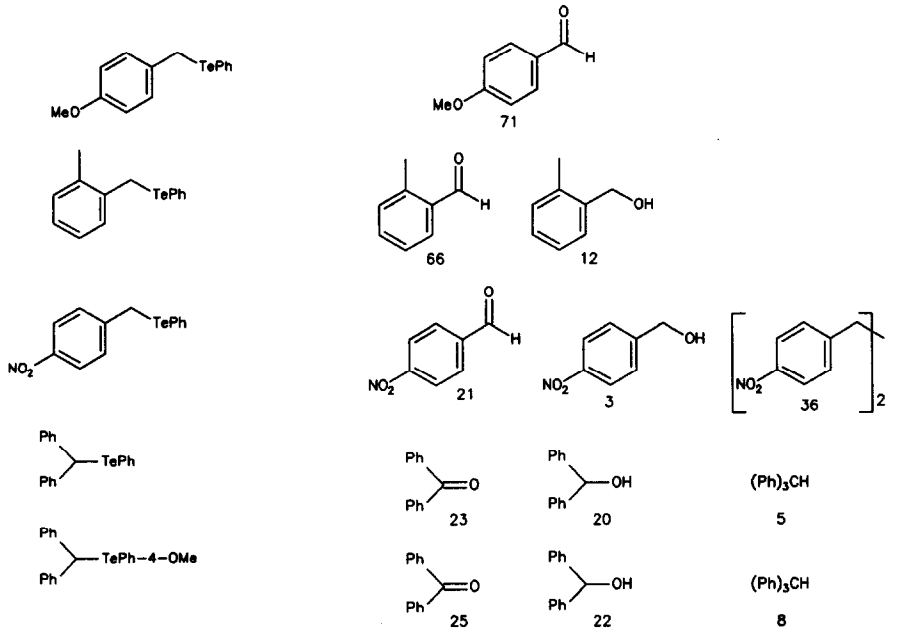


Table 1 - Continued



[a]The numbers are the isolated yield
All products are known and gave satisfactory NMR analyses.

In conclusion, the results show that oxidation of aryl benzyl tellurides by air is general. It seems that the yields are dependent on the substitution pattern on the benzylic moiety of the telluride.

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References and Notes

1. Petragnani, N. and Comasseto, J.V.; Synthesis, 1991, 793 (Part 1); Petragnani, N. and Comasseto, J.V., *ibid*, 1991, 897 (Part 2).
2. Comasseto, J.V.; Ferreira, J.T.B. and Fontanillas Val, J.A.; J. Organomet. Chem., 1984, **277**, 261.
3. Uemura, S.; Fukuza, S. and Konichi, O.; Tetrahedron Lett., 1985, 921.
4. Spencer, H.K. and Cava, M.P., J. Org. Chem., 1977, **42**, 2937.
5. Spencer, H.A.; Lakshmikentham, M.V. and Cava, M.P.; J. Am. Chem. Soc., 1977, **99**, 1470.
6. A typical procedure for the preparation of aryl benzyl tellurides and their air oxidation is as follows: To a solutions of diphenyl ditelluride (408 mg, 1 mmol) in 2 mL of a mixture of benzene:ethanol (3:1) was added dropwise 0,85 mL of a solution of 0,1 g of $NaBH_4$ in 1 mL of a 1N NaOH. To the resulting colorless solution, 2 mmoles of alkylating agent were added rapidly. After 2h the resulting mixture was extracted with CH_2Cl_2, washed with water and the solvent was evaporated. The crude mixture was then dissolved in 25 mL of acetonitrile and this solution was exposed during 24h to air and light. After evaporation of acetonitrile, the product was purified by preparative T.L.C..

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