

Synthesis, characterization and structure of DBU-hydrobromide-perbromide: a novel oxidizing agent for selective oxidation of alcohols to carbonyl compounds

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The conversions of functional groups to each other have been the center of attention in organic synthetic methodology. For instance, the selective oxidation of primary and secondary alcohols to the corresponding aldehydes and ketones is of great importance in chemistry and industry [1]. Organic tribromide salts as mild reagents are good candidates for this selective conversion, because they are not only stable, crystalline solids, and relatively soluble in most organic solvents but also can be handled more conveniently than liquid bromine and can be used successfully for this purpose.

DBUHBr₃ reagent was easily prepared from the reaction of DBU with molecular bromine in dry chloroform. The resulting DBUH⁺Br₃⁻ reagent has the advantages of being a non-hygroscopic and homogeneous solid which is not affected by exposure to light and moisture. It also showed a remarkable stability at room temperature for a long time. We have determined its 3D-structure by X-ray crystallography and its generality was examined in the selective oxidation of benzylic, allylic, primary and secondary alcohols into their corresponding carbonyl compounds on stirring in a mixture of dichloromethane and water at room temperature to give the corresponding products in good to excellent yields.

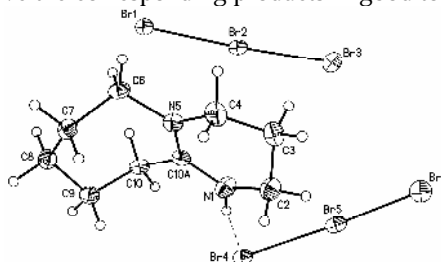
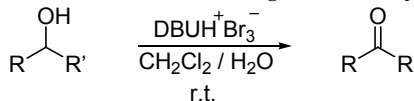


Fig. 1. Molecular structure and atomic labeling scheme (50% probability level).



References:

- [1] Fey, T.; Fischer, H.; Bachmann, S.; Albert, K.; Bolm, C. *J. Org. Chem.* **2001**, *99*, 8154.