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Cyclization of some terpenic alcohols

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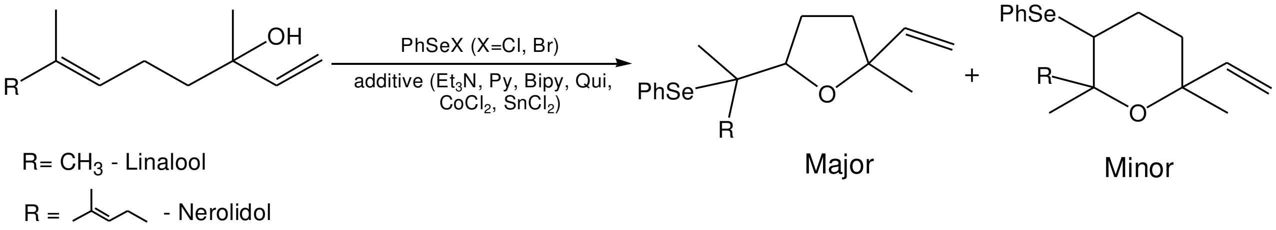
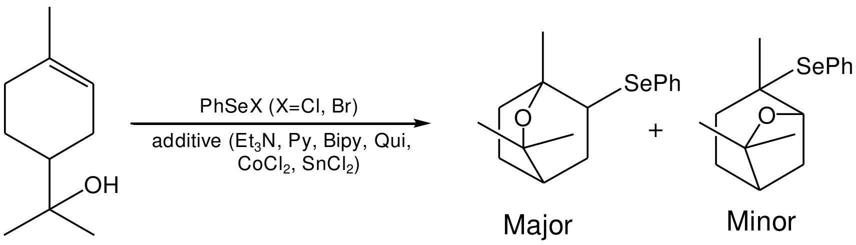
Substituted tetrahydrofuran and tetrahydropyran ring systems are common structural units found in many bioactive natural products.[1] Consequently, the development of strategies for the stereocontrolled synthesis of substituted tetrahydrofurans and tetrahydropyrans is an area of considerable ongoing interest.[2] In this paper we reported an interesting approach to formation of highly substituted THF and THP type of rings, through an acid or base-catalyzed 5-*exo* and/or 6-*endo* cyclization of some natural terpenic alcohols like α-terpineol, linalool and nerolidol by an electrophile-mediated cyclization with PhSeCl and PhSeBr. Side chains of these cyclic ether products can be further easily transformed in to wide range of substrates due to versatile functionality of double bond. Certain regioselectivity was noticed in these reactions. Nerolidol behaves like linalool in the reaction with PhSeX, affording predominantly tetrahydrofuran derivates while, α-terpineol tetrahydropyran ones. Some aliphatic and aromatic amines were used as Lewis- base-additives. Presence of additive increases the yields from 30-40% to almost quantitative. In reactions of nerolidol and linalool cyclizations, depending on amine basicity and voluminosity, different ratios of cis-/trans- products can be obtained.





Literature:
[1] T. Yasumoto, M. Murata, Chem. Rew. **1993**, *93*, 1897 [2] T. Wirth, *Angew. Chem. Int. Ed.,* **2000**, *39*, 3740-3749