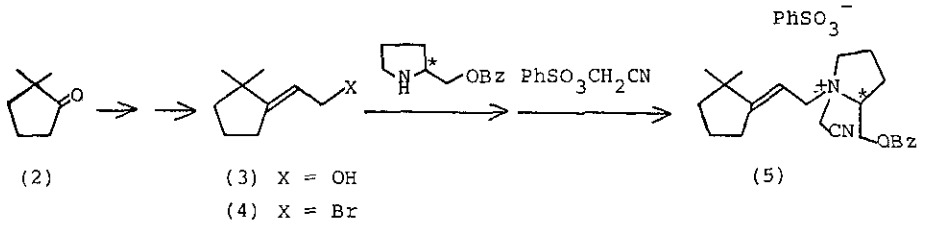
THE TOTAL SYNTHESIS OF (+)-POLYZONIMINE

Tsutomu Sugahara, Yuuki Komatsu, and Seiichi Takano
Pharmaceutical Institute, Tohoku University, Aobayama, Sendai
980 Japan

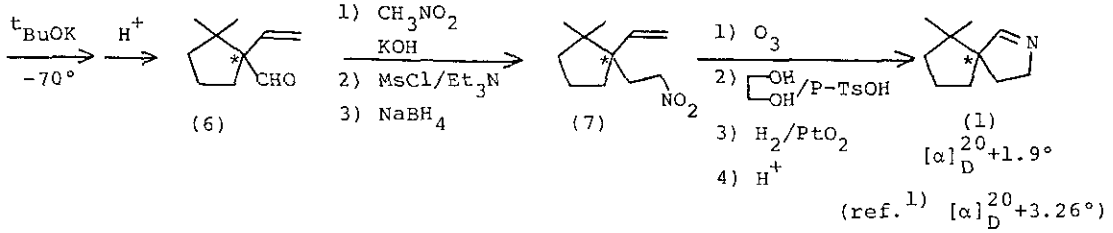
Polyzonimine (1) is an insect repellent isolated from the milliped Polyzonium rosalbum, which has the unique 2-azaspiro [4,4]non-1-ene skeleton[1].

We report a synthesis of (+)-polyzonimine. The allylic bromide (4) derived from cyclopentanone (2) was converted into the chiral ammonium benzenesulfonate (5), which was subjected to asymmetric [2,3]sigmatropic rearrangement[2] to give the optical active olefin-aldehyde (6). The transformation of (6) into the (+)-polyzonimine (1) was accomplished by the following steps.

The optical active olefin-aldehyde (6) could be an important intermediate in the preparation of enantiomer of (1). The conversion of (6) to (-)-polyzonimine will be discussed.



(2) (3) X = OH (4) X = Br (5)



(6) (7) (1) $[\alpha]_D^{20}$ +1.9° (ref.[1] $[\alpha]_D^{20}$ +3.26°)

References

1) J. Smolanoff, et al., Science, 188, 734 (1975).

2) K. Hiroi, et al., Chem. Letter, 1980, 1077.