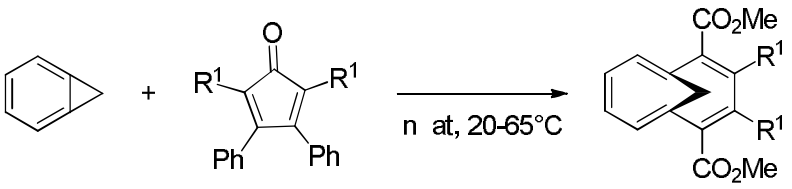
Cheletropic Reactions:

A form of cycloaddition across the terminal atoms of a fully conjugated system with formation of two new σ -bonds to a single atom of the ('mono-entric') reagent. There is formal loss of one π-bond in the substrate and an increase in coordination number of the relevant atom of the reagent.

The reverse of this type of reaction is designated 'cheletropic elimination' (special case of cycloreversion) and is synthetically more often used.

These reactions are subjected to symmetry analysis: The Woodward-Hoffman rules are followed.

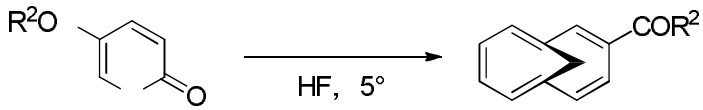
Ex. 1)



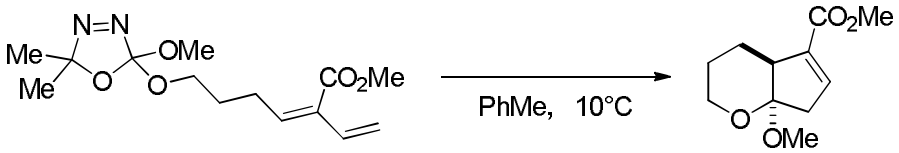
R = Me, Et, CO_2Me

A nulenes

Helv. Chim. Acta 1 99, 72, 1 31

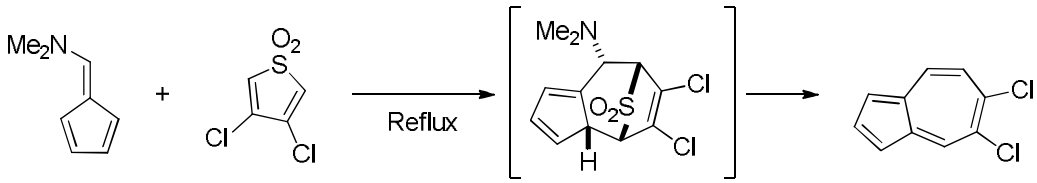


Ex. 2)

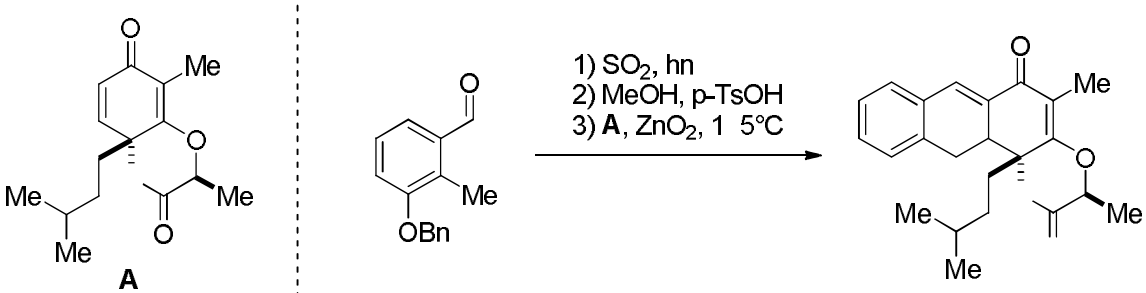


J .:S **004**, *126*, 9 6
Org. Le t. **0 ?**, *9*, 361

Ex 3)

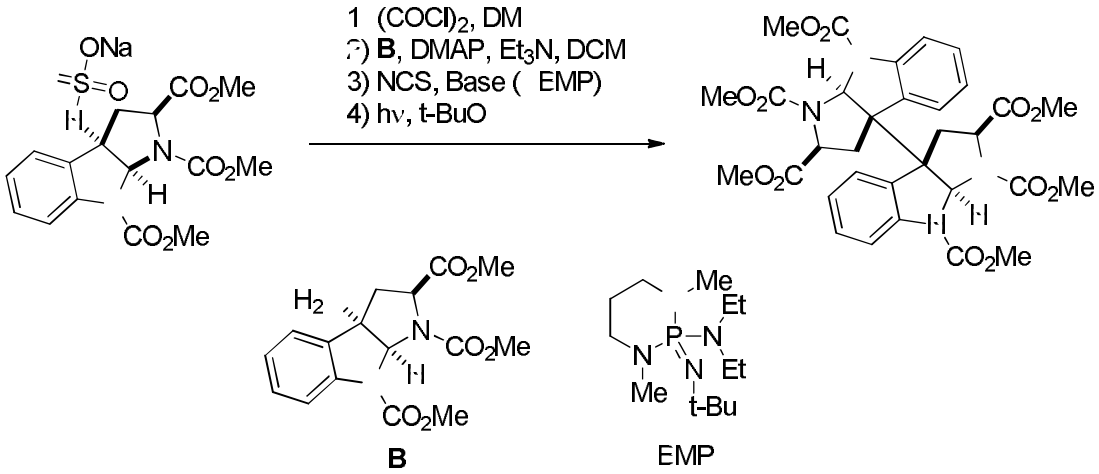


Ex 4)



J .:S 2 6, 1 3, 15 35

Ex 5)



J .:S 2 1, 1 3, 1 302