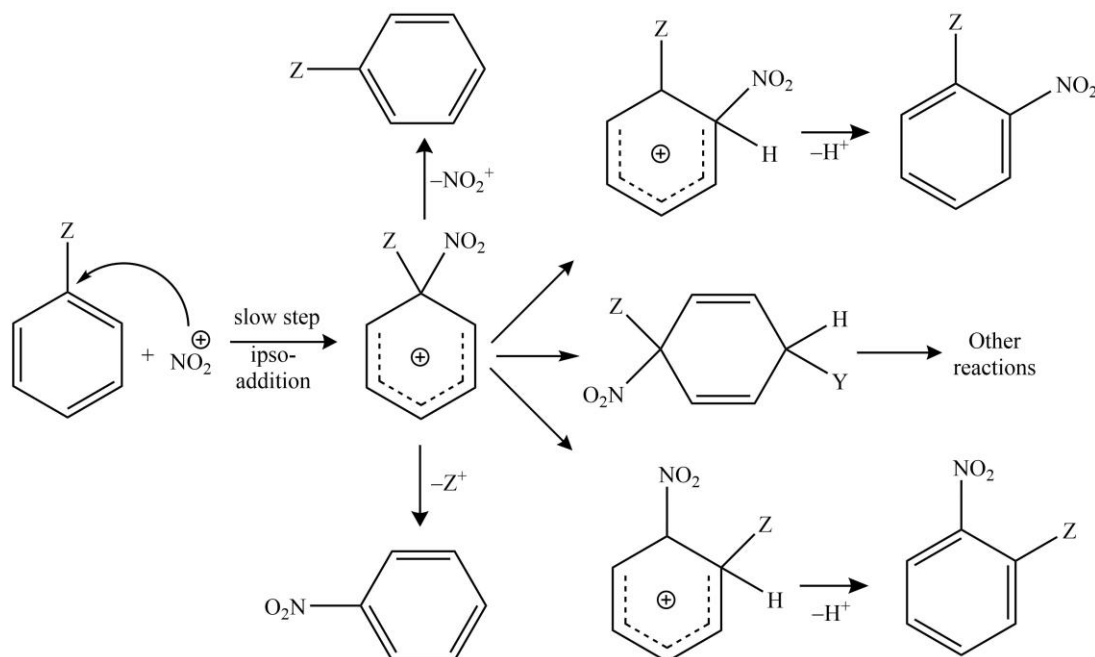


❖ *ipso*-Attack

Besides the attack at *o*-, *m*-, or *p*-positions, the incoming electrophile can also attack the substituted carbon itself called *ipso*-attack. For instance, consider the case when the NO_2^+ group attacks at substituted benzene as given below.



It is obvious that the carbonium ion formed after the attack can result in five different products via five different pathways.

Path I: The NO_2^+ can be lost from arenium resulting in the initial compounds. Since there is no net chemical change, this pathway is quite difficult to detect.

Path II: The NO_2^+ electrophile can show the 1, 2-rearrangement, and losing a proton afterward; and therefore, would result in a product which is equivalent to the product given by *o*-attack. Nevertheless, the amount of *o*-product cannot be predicted exactly though it is quite reasonable. Therefore, an ambiguity arises about the *o*-, *m*-, or *p*-positions because some of the ‘calculated’ *o*-activity may actually be the result of the *ipso*-attack followed by this pathway.

Path III: In this case, Z^+ is lost (instead of NO_2^+) from the arenium ion, resulting in a product that is equivalent to a simple electrophilic substitution where leaving group is not proton.

Path IV: A nucleophilic attack can happen at the carbonium ion, which may result in cyclohexadiene which is equivalent to 1,4-addition to the aromatic ring.

Path V: The Z^+ electrophile can show the 1, 2-rearrangement, and losing a proton afterward; and therefore, would result in a product that is equivalent to the product given by *o*-attack or Path II.

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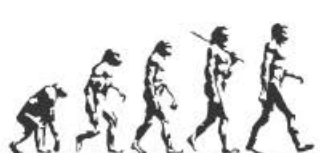
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Volume I

MANDEEP DALAL



First Edition

DALAL INSTITUTE

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