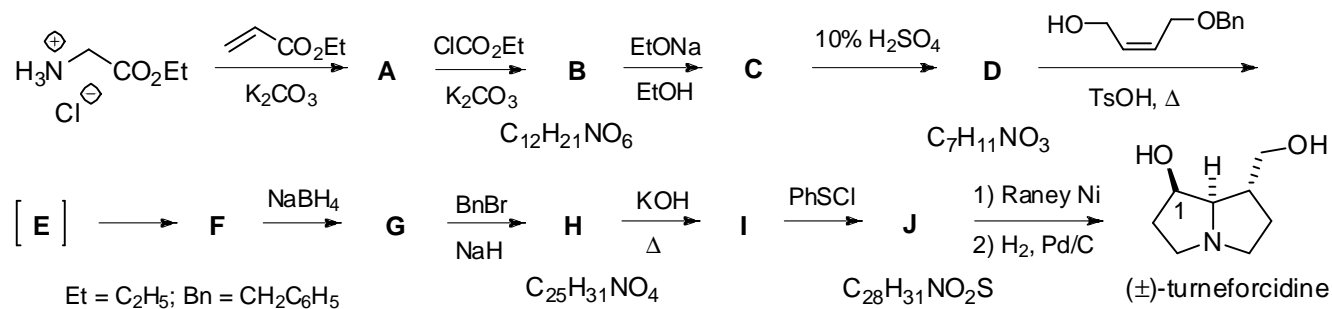


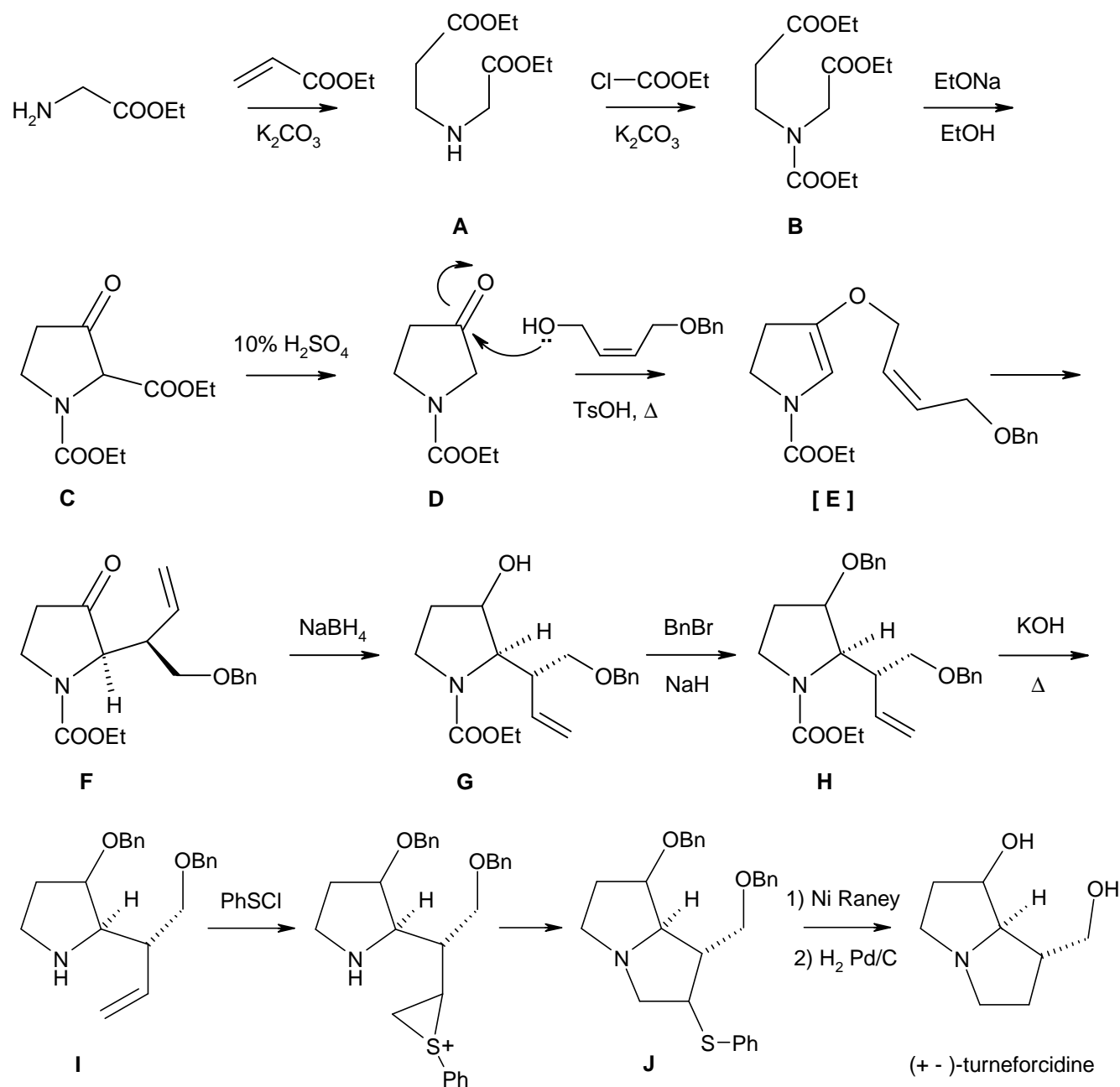
## Problema 21 Pyrrolizidine alkaloids

1. The synthesis of dihydroxypyrrolizidine alkaloid, ( $\pm$ )-turneforcidine, is given in the Scheme 1. In this scheme E is an unstable intermediate which spontaneously undergoes the Claisen rearrangement producing F. Write down the structural formulae of compounds A–J.

Scheme 1



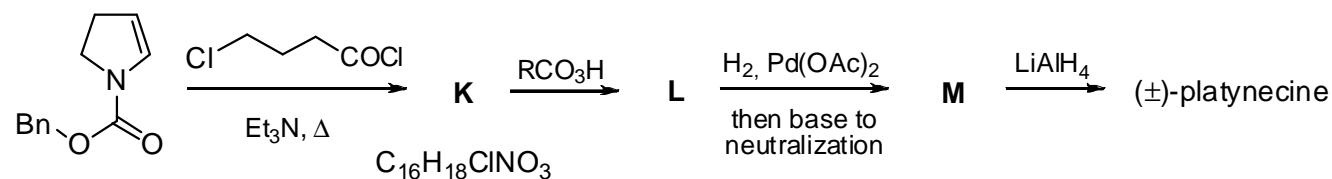
Solution 1:



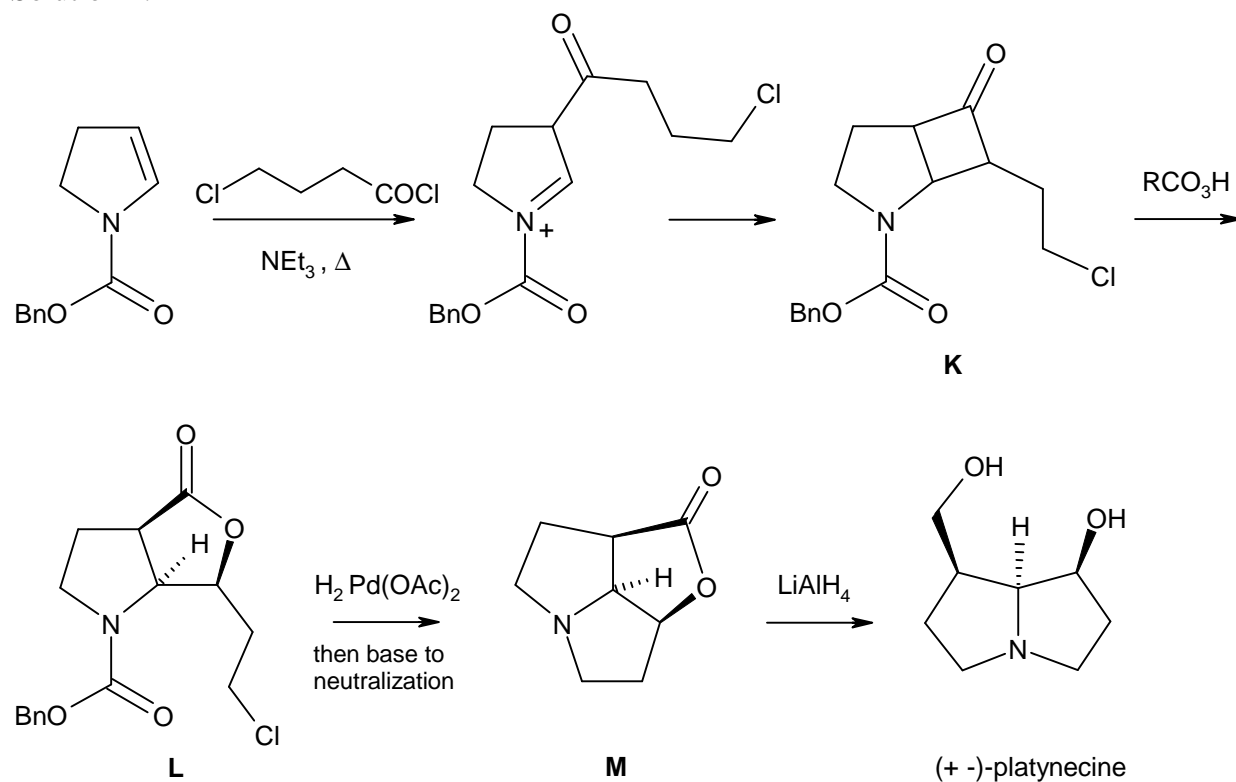
2) Epimer of turneforcidine at C(7) atom, ( $\pm$ )-platynecine, was synthesized by the reaction sequence given in Scheme 2. It is noteworthy that **K** is the product of [2+2]-cycloaddition.

Write down the structural formulae of compounds **K–M** as well as of ( $\pm$ )-platynecine.

Scheme 2



Solution 2:



Soluzione proposta da  
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