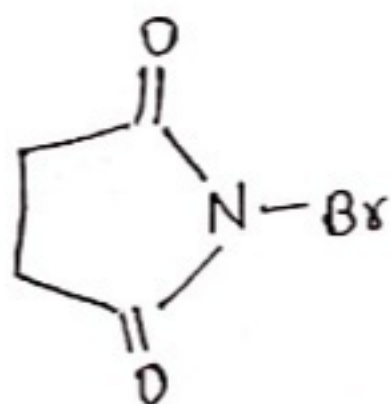


# SYNTHETIC REAGENTS <sup>1.</sup>

LECTURE -6 , DATE : 10/08/2020

DEGREE -III( CHEMISTRY HONS.)

## Topic :- N-Bromosuccinimide



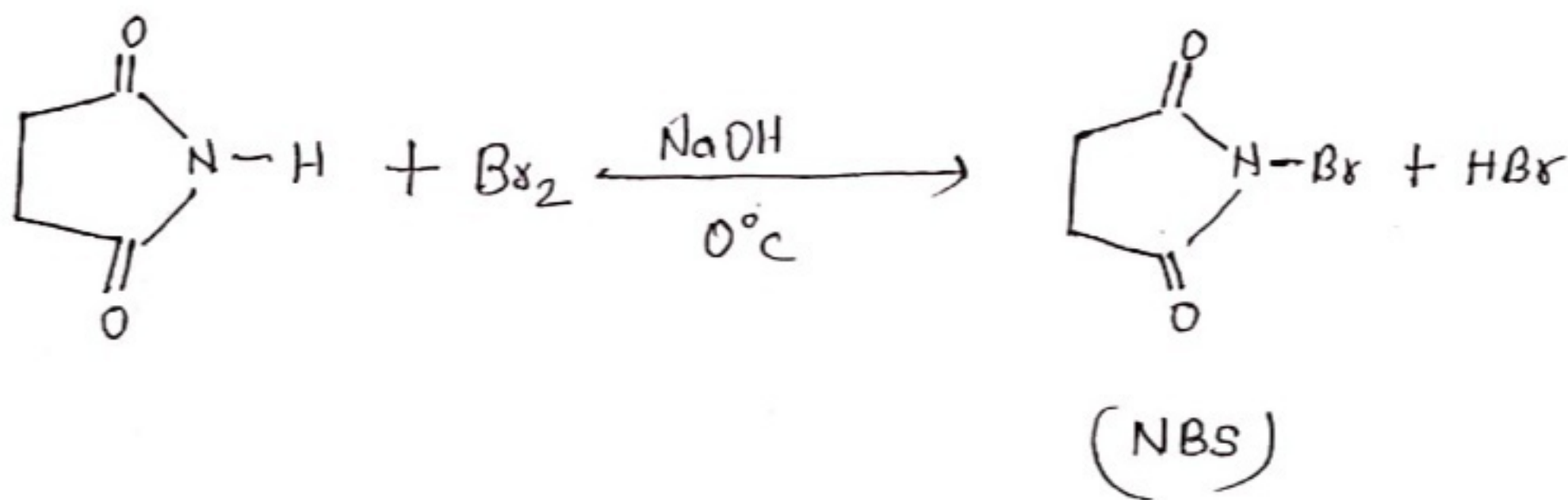
By:-Dr.Rinky

1-Bromo-2,5-pyrrolidenedione

(N-Bromosuccinimide, NBS)

## Preparation

\* NBS can be prepared by adding bromine to an ice cold solution of succinimide in alkali when the reagent precipitates immediately.



1-Bromo-2,5-pyrrolidenedione, commonly known as N-bromosuccinimide is a convenient source of bromine

for both radical substitution and electrophilic addition reaction.

Free radical substitution of allylic or benzylic hydrogen by bromine is accomplished with N-bromosuccinimide in non-polar solvents such as  $CCl_4$ .

However the use of NBS in aqueous solvents (mixture of DMS with water) as a source of electrophilic bromine has found increasing importance in the formation of bromohydrins.

## Allylic and benzylic bromination

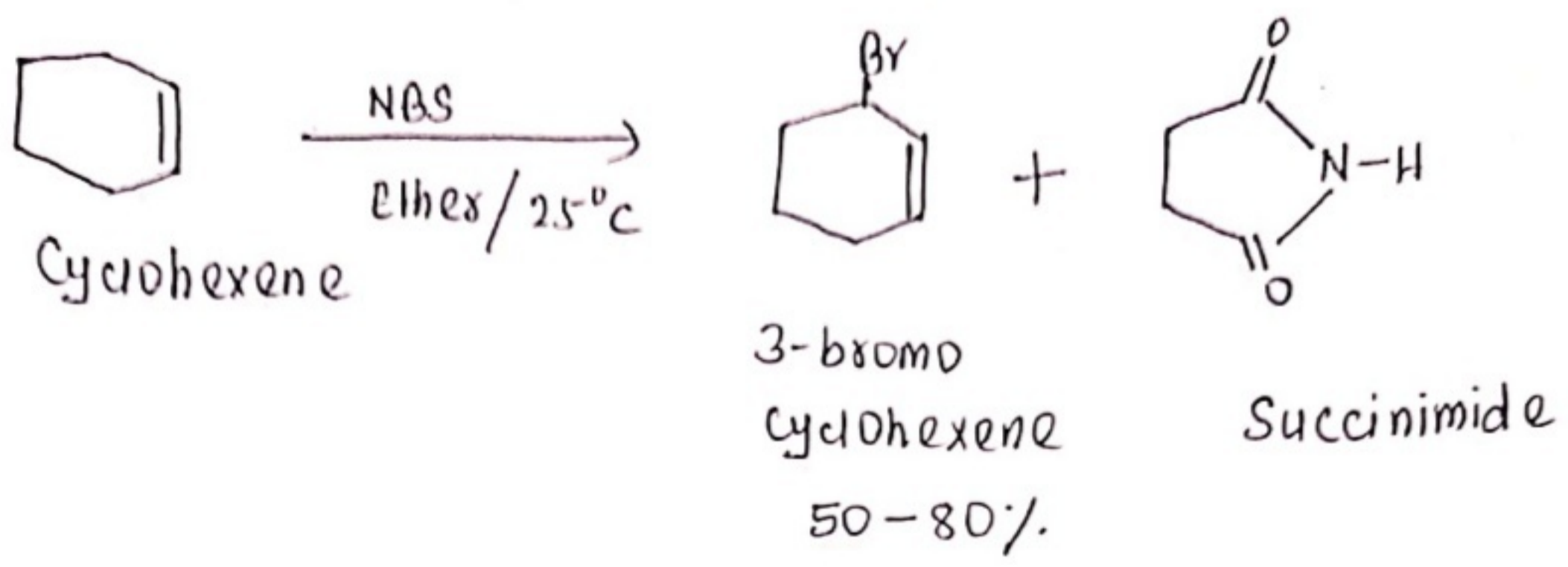
Alkene are brominated at allylic position on refluxing a solution of the alkene and recrystallised NBS in anhydrous  $CCl_4$ .

The reaction is initiated by peroxide or light.

For example: Reaction of NBS with cyclohexene gives 3-bromocyclohexene in the presence of catalytic amount of radical initiator such as benzoyl peroxide or AIBN.

\* Alkene can be brominated in the allylic position by a number of reagents, but NBS is most common.

When NBS is used for allylic bromination of alkene then the reaction is known as Wohl-Zigler bromination.



If there are two allylic positions, then two monobromo-derivatives may be obtained.

\* Allylic methylene groups are attacked much more rapidly, than allylic methyl groups.

eg. In 2-heptene, a secondary position is substituted more readily than a primary.

