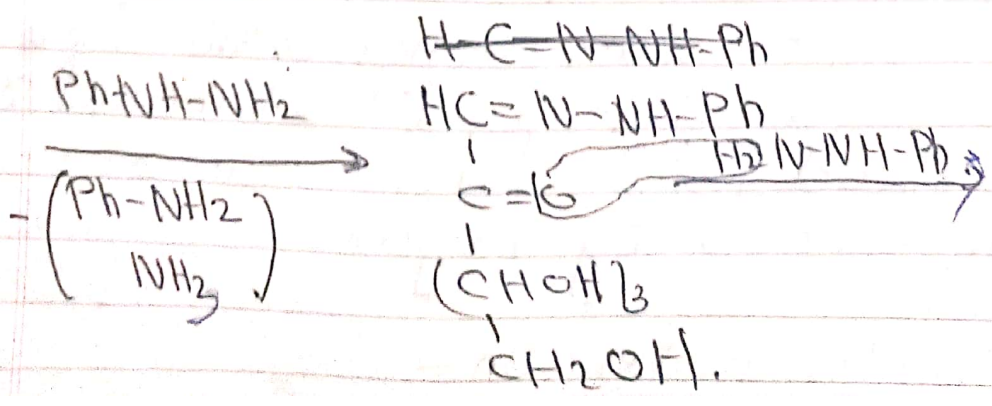
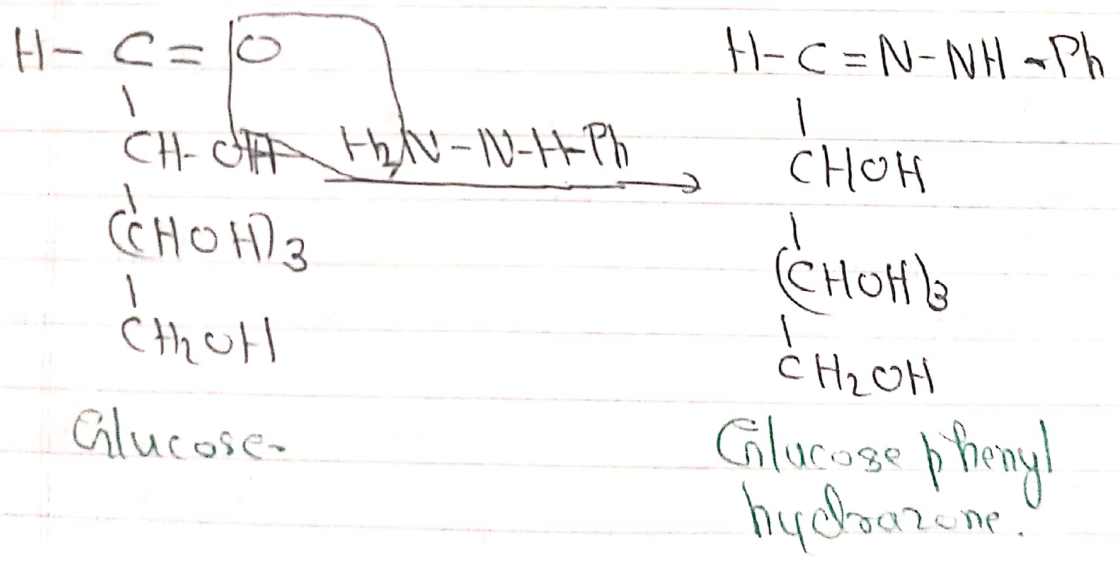


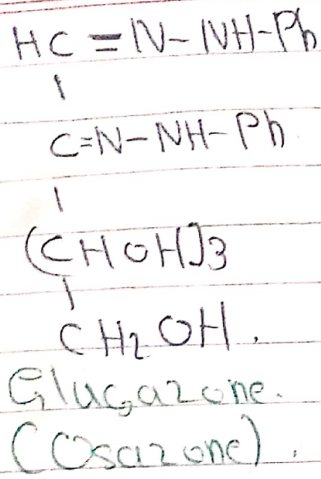
Oscarone, Muta rotation:-

Why glucose and fructose can form oscarone?

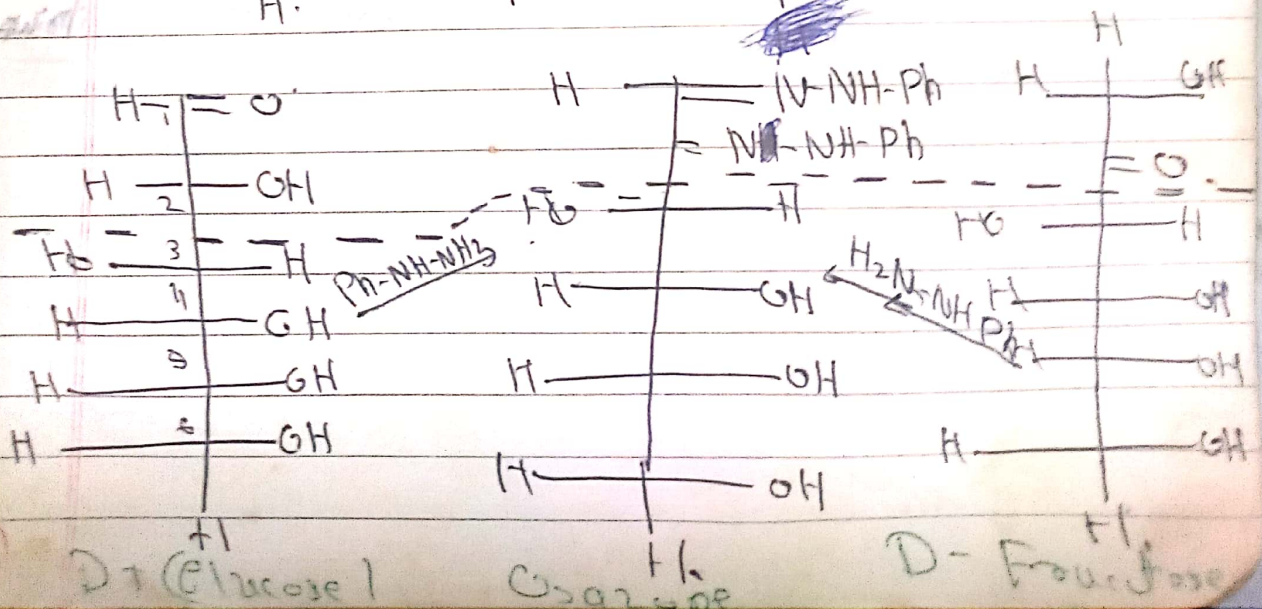
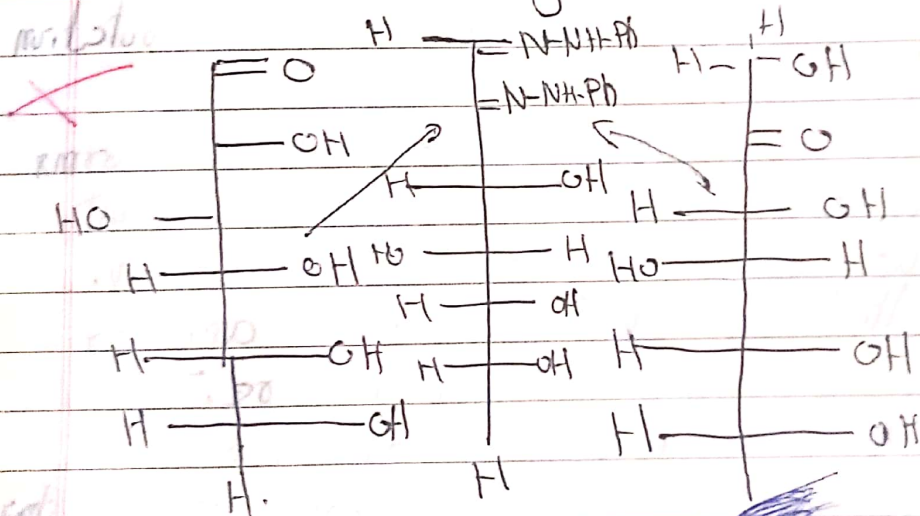
When glucose is heated with phenyl-hydrazene we get monohydrate. Further reaction with reagent gives a crystalline solid called oscarone.

In oscarone formation three molecules of phenyl hydrazene are consumed. The mechanism of oscarone formation is not clear. One of the mechanism is given below:-

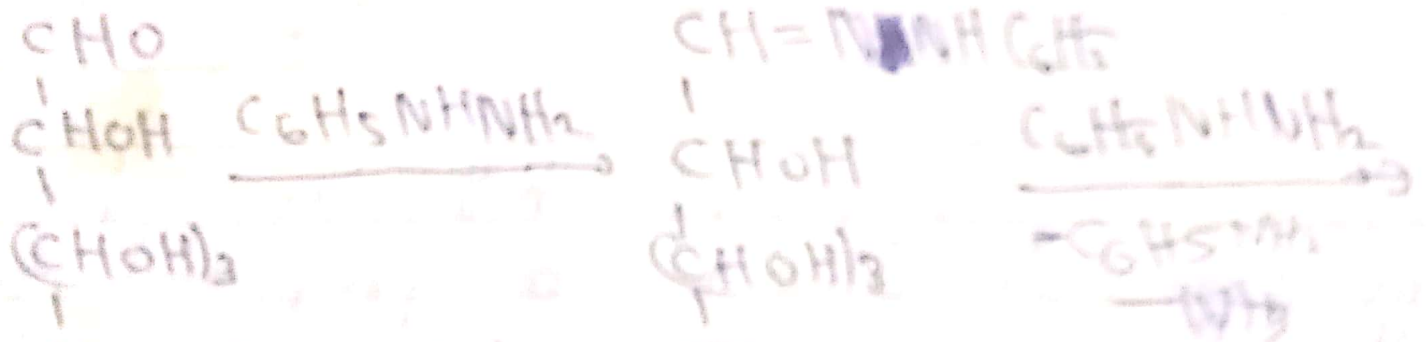




Glucose and Fructose form same osazone. Both compounds have different configurations at C₁ and C₂. But same configuration at C₃, C₅, C₆ and C₆. Osazone formation takes at C₁ and C₂ only. Hence after reaction with phenylhydrazine glucose and fructose give same osazone.

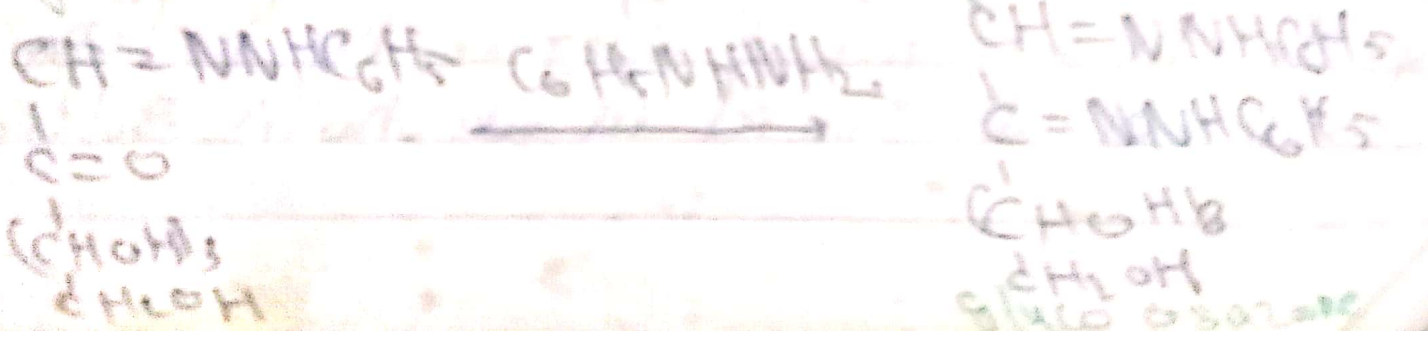


a) Oxazone Purification - Glucose reacts with excess of phenyl hydrazine to form ~~gluco~~ glucosazone.



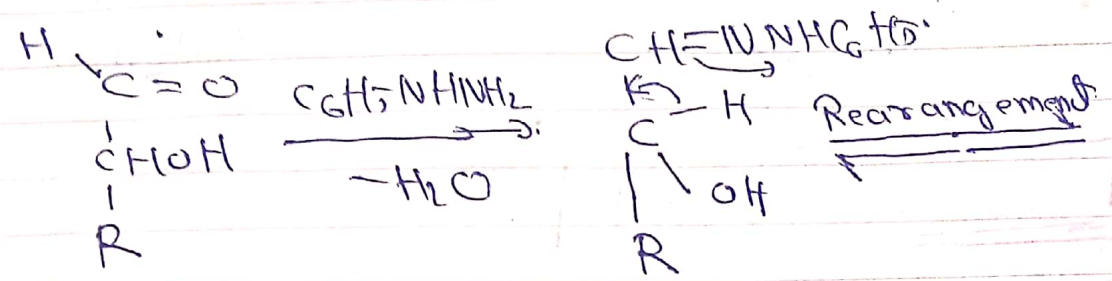
D-glucose

D-glucosazone



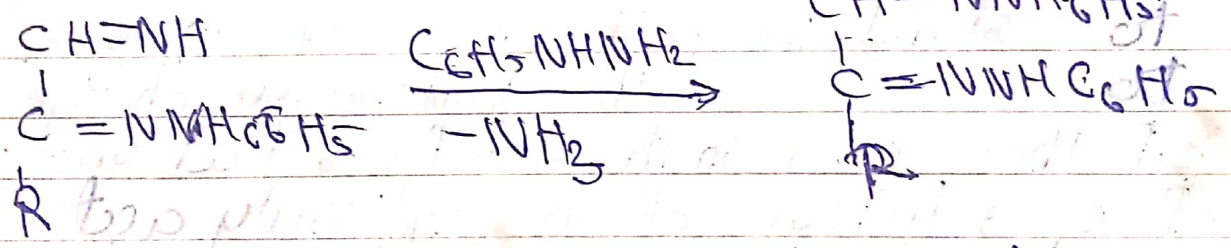
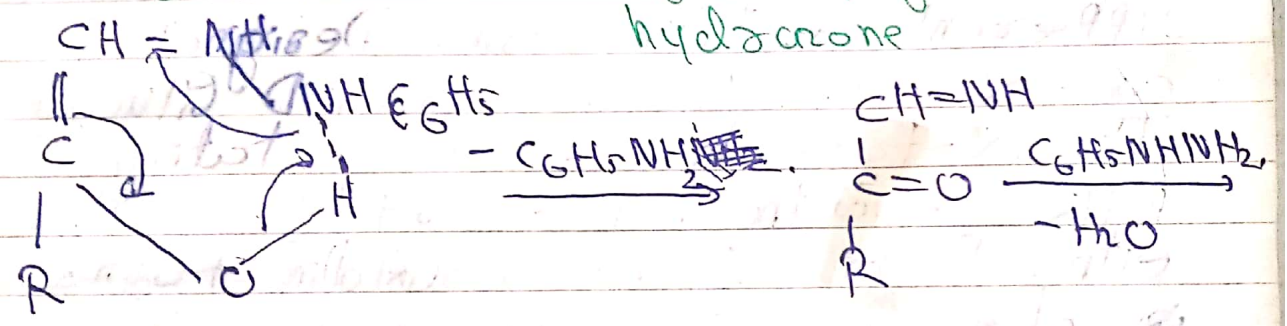
gluco oxazone

Mechanism:- The mechanism of osazone formation is uncertain but the one proposed by Weygand and Semyakin is generally accepted. According to this mechanism:-



D-glucose

D-glucose phenyl
 hydrazone



The above mechanism does not explain why the reaction stops with the introduction of two residues of phenyl hydrazine. In other words, why the osazone does not undergo a further intramolecular rearrangement involving the C₃ position. It has been proposed and subsequently established spectroscopic methods that further reaction of the osazone is prevented due to its stability by chelation.

