

## QUESTION

Which of the following will not show mutarotation?

A Maltose

B Lactose

C Glucose

D Sucrose

## ANSWER :

Correct option is D)

**Mutarotation** is the change in the optical rotation because of the change in the equilibrium between two anomers when the corresponding stereocenters interconvert.

Maltose is a reducing sugar because it has a hydroxyl group on the right-hand ring (like the orientation of simple carbohydrates as beta or alpha).

Sucrose is not a reducing sugar because it does not have an available hydroxyl group. The glycosidic bond that forms in sucrose occurs between the anomeric carbons on glucose and fructose which eliminates the availability of the hydroxyl group. The anomeric carbon is the carbon where the ring forms between the hydroxyl carbon and the carbonyl carbon.

Without this hydroxyl group, the ring cannot open and close and therefore not undergo mutarotation. Reducing sugars can undergo mutarotation. Non-reducing sugars cannot undergo mutarotation.