

To identify the functional group present in the given organic compound.

| Test | Observation | Result |
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| Test for unsaturation (Alkene) Oxidation by KMnO_4 | Quick loss of pink color and formation of brown precipitate. | Alkene is present |
| | -ve | Alkene is absent |
| Test for phenolic group by FeCl_3 | Dark blue/purple color | Phenolic group is present |
| | -ve | Phenolic group is absent |
| Test for carbonyl group by 2, 4-Dinitro phenyl hydrazine (2, 4-DNP). | Formation of orange- yellow ppt | Carbonyl group is present |
| | -ve | Carbonyl group is absent |
| Test for aldehydic group by Tollen's reagent | Silver mirror is formed | Aldehyde group is present |
| | -ve | Aldehyde group is absent |
| Test for carboxylic group by NaHCO_3, sodium bicarbonate. | Evolution of brisk effervescence. | Carboxylic group is present |
| | -ve | Carboxylic group is absent. |

Distinguishing test of alcohols

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| Lucas test. | cloudiness appears immediately | Tertiary alcohol is present |
| | cloudiness appears after 5 min | Secondary alcohol is present |
| | -ve | Primary alcohol is present |
| Oxidation by KMnO_4 | Formation of brown ppt | Primary or secondary alcohol. |
| | -ve | Tertiary alcohol. |

Qualitative tests for carbohydrate

| Test | Observation | Result |
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| Molisch's test | deep violet ring is observed | It belongs to carbohydrate |
| Conc. H ₂ SO ₄ | immediate blackening | It belongs to carbohydrate |
| Solubility test | a) insoluble in water | It is starch |
| | b) soluble in water | It is not starch. (it may be Monosaccharides or disaccharides) |
| Iodine test | a) blue color is observed | It is starch |
| | b) -ve (blue color is not observed) | It is not starch. (it may be Monosaccharides or disaccharides) |
| Barfoed's Test | a) red precipitate | It is monosaccharide sugar (glucose or fructose) |
| | b) -ve | It is disaccharide sugar. (Lactose, maltose, sucrose) |
| Fehling's test | a) Orange - red precipitate | It is a reducing sugar. (glucose, fructose, maltose or lactose) |
| | b) -ve | It is non-reducing sugar. (sucrose or starch) |
| Ketose test | a) orange color | It is ketose sugar. (fructose) |
| | b) -ve (orange color is not observed) | It is aldose sugar. (glucose) |