CARBOHYDRATE TEST

AIM: To test the presence of carbohydrate in the given food sample.

PROCEDURE:

S.No	EXPERIMENT	OBSERVATION	INFERENCE
1	CONC H_2SO_4 TEST Food sample + conc. H_2SO_4. Heat	Charring occurs with smell of burnt sugar	Carbohydrate present.
2	MOLISCH'S TEST Food sample + Molisch'sreagent (1% alcoholic solution of α naphthol) + conc. H_2SO_4along the sides of the test tube.	A purple ring is obtained at the junction of the two layers.	Carbohydrate present.
3	BENEDICT'S / FEHLING'S TEST Food sample + Benedict's reagent/ Fehling's reagent (A mixture of equal amounts of Fehling's A and Fehling's B). Heat.	A red ppt. is obtained.	Carbohydrate present.
4	TOLLEN'S TEST Food sample + Tollen's reagent (amm. silver nitrate solution). Heat on water bath.	A silver mirror is obtained the walls of the test tube.	Carbohydrate present.

EQUATIONS: (ON BLANK SIDE USING A PENCIL)

1. $CHO(CHOH)_4CH_2OH + 2Cu^{2+} + 5OH^- \rightarrow COOH(CHOH)_4CH_2OH + Cu_2O + 3H_2O$
   Glucose — Gluconic acid
2. $CHO(CHOH)_4CH_2OH + 2[Ag(NH_3)_2]^+ + 3OH^- \rightarrow COOH(CHOH)_4CH_2OH + NH_3$
   Glucose — (Gluconic acid) $+ 2Ag\downarrow + 2H_2O$

RESULT: : *(ON RULED SIDE)* The food sample has been tested for carbohydrate.

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OIL FAT TEST

AIM: To test the presence of oil or fat in the given food sample.

PROCEDURE:

S.No	EXPERIMENT	OBSERVATION	INFERENCE
1	SOLUBILITY TEST Food sample + water Food sample + chloroform($CHCl_3$)	 Does not dissolve Miscible	 Oil / fat present.
2	SPOT TEST Smear the food sample on paper.	 A translucent spot is observed.	 Oil / fat present.
3	ACROLEIN TEST Food sample + $KHSO_4$. Heat	 An irritating odour is obtained.	 Oil / fat present.

EQUATIONS: (ON BLANK SIDE USING A PENCIL)

Oil/ fat --> glycerol + fatty acid

$CH_2(OH)CH(OH)CH_2(OH) + KHSO_4 \rightarrow CH_2{=}CHCHO$ (acrolein) $+ 2H_2O$

RESULT: ***(ON RULED SIDE)*** The food sample has been tested for oil/fat

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PROTEIN TEST

AIM: To test the presence of protein in the given food sample.

PROCEDURE:

S.No	EXPERIMENT	OBSERVATION	INFERENCE
1	BIURET TEST Food sample + few drops of NaOH + $CuSO_4$ solution.	A violet colouration is obtained.	Protein present.
2	XANTHOPROTEIC TEST Food sample + few drops of conc. HNO_3. Heat.	A yellow ppt. is obtained.	Protein present.
3	NINHYDRIN TEST Food sample + few drops of 0.15 ninhydrin solution. Boil the contents.	A blue colour is obtained.	Protein present.

RESULT: ***(ON RULED SIDE)*** The food sample has been tested for proteins.

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