Test for Glucose, Sucrose, Proteins, Fats & Shows Their Presence in Suitable Plant & Animal Materials

AIM: To test for glucose, sucrose, proteins, fats & shows their presence in suitable plant & animal materials (e.g. – wheat, potato, groundnut, milk or other materials)

REQUIREMENTS: Wheat grain, potato, groundnut, milk, egg, grapes/apple/banana, filter paper, test tubes, funnel, beaker, burner, Benedict's solution, Fehling's solutions, Biuret reagent, Million's, Sudan III, NaOH, HCl, HNO_3 etc.

PROCEDURE: Soak the suitable material (wheat, groundnut or rice). Grind them separately & make their paste. Similarly make a paste of potato, fruits & egg album in separately. Filter the content of all these in separate test tubes & label them. Use these filtrates for testing.

TEST	OBSERVATION	INFERENCE
1.TEST FOR GLUCOSE **(i) BENEDICT'S TEST** Take 2ml of fruit juice in a test tube. Add 2ml of Benedict's solution to it. Boil test tube for 2 minutes & cool. **(ii) FEHLING'S TEST** Take 2ml of fruit juice in a test tube & add 2ml of each of Fehling's solution A & Fehling's solution B in it & boil.	A green ppt appears in the solution, which may later turn orange or brick red in colour Orange or brick red ppt. appears in the test tube.	Shows the presence of glucose. Green ppt shows presence of glucose in lesser concentration, orange or red ppt indicate the presence in higher concentration. Shows presence of glucose (Monosaccharide)
2. TEST FOR SUCROSE Take 2ml of sugar cane juice. Add a few drops of HCl & boil the test tube gently for one or two minutes. This hydrolyses sucrose into glucose & fructose. Make the solution alkaline with NaOH. Now perform Benedict's or Felling's test with this solution for presence of glucose	Orange or brick red ppt is observed in the test tube.	Positive test with Benedict's/ Ferling's solution shows the presence of sucrose in juice tested.
3. TEST FOR STARCH **(i) IODINE TEST**	Blue-black colour is observed.	Shows the presence of starch.

Take 2ml extract (potato/gram/rice) in a test tube & add a few drops of iodine solution to it. **(ii)BENEDICT'S/FEHLING'S** Test after hydrolysis. Take 2ml of starchy solution. Hydrolyse it by boiling with a few drops of HCl. Make the solution alkaline by adding NaOH & perform Benedict's/Fehling's test.	 Brick red or orange ppt is observed.	Positive test with Benedict's solution shows the presence of starch.
4. TEST FOR PROTEINS **(i) BIURET TEST** Take 3ml of 5% NaOH in a test add 2 drops of 1% CuSO4. Shake it thoroughly now in a 2nd test tube take 2ml of the extract (grapeseed) **(ii) XANTHOPROTEIC TEST** Take 2ml of the extract in a test tube & add 2-3 drops of concentrated HNO3 to it Cool the solution, dilute it with H2O & add few drops of ammonia **MILLON'S TEST** Take 2 ml of the extract in attest tube & add 2ml of Millon's reagent to it.	 Pink, red or violet colour is observed. Yellow ppt observed. Yellow ppt changes to orange. Rink or red colour is seen.	 Show presence of proteins. Indicates the presence of protein Protein indicated
5. TEST FOR FATS **(i)** Take a 1 ml of extract (peanuts/castor seeds) in a test tube & shake the solution vigorously. Dip a glass red in the solution & put its spot on the white paper. (ii) Crush peanut/ castor seed & rub it on a piece of white paper. **(iii)** Take 2ml of the extract in a test tube & add 1ml of Sudan III to it.	Paper becomes translucent at the spot. A translucent spot appears the paper. Pink droplets appear in the solution.	Indicates presence of fat Indicate presence of fat. Shows presence of fat.