Lect.5.

Lipid

One Experiment

Properties for Lipid :

Object : To detect the greasy nature of Lipid

Principle:

Lipid is soluble in ethanol (nonpolar solvents).the solution of lipid keeping for some time at (37-40 °C) the lipid are greasy in the nature ,therefore this test may be taken as a group test for lipid.

Reagents

1- Ethanol 2- oil 3- Filter paper

Procedure

Take 3ml of ethanol in test tube and dissolve 10drop of oil in it .put a drop of this solution on a filter paper , and let it dry at room temperature.

Observation:

Spot on Filter paper.

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Two Experiment

Solubility

Object : To detect the relative Solubility of given Lipid in various polar solvent.

Principle:

This test based on the property of Solubility of Lipid in organic ،solvent and insolubility in water, Lipid are lighter than water.

Reagents

1- Ethanol. 2-chloroform 3- water

Procedure

Take 3 test tube and mark them A,B,C, in test tube A Take3ml of ethanol in test tube and add 5drop of oil in test tube . in test tube B Take3ml of chloroform in test tube and add 5drop of oil in test tube. in test tube CTake3ml of water in test tube and add 5drop of oil in test tube. Shake the test .

Observation

in test tube A soluble.

in test tube B readily soluble.

in test tube C insoluble .

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Three Experiment

Emulsification

Object : To detect the Emulsification of neutral fat in water and solution of sodium carbonate, soap, and bile salt.

Principle.

When the Oil and water, Which are not miscible are shaken together, the Oil is broken up into very tiny droplet Which are dispersed in water.

Reagents

sodium carbonate, soap solution, bile salt solution.

Procedure:

Take 5ml each of water, sodium carbonate solution, soap solution, and bile salt solution in separate test tube and label them A,B,C and D .add 1ml of oil in all these test tube shaken solution and allowed it to stand for 10minutes.

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Four Experiment

(Detection of cholesterol in samples (food, serum)

Salkowski test

Add 2 ml of the provided chloroform to cholesterol

Add an equal volume of concentrated sulfuric acid (H2SO4).

A positive test is indicated by A yellow to brick-red color is formed indicating the presence Cholesterol.

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B-Liebermann-Burchard test

1-Add 10 drops of acetic anhydride

2-Add 2 drops of concentrated sulfuric acid to 2 ml chloroform to cholesterol.

A positive test is indicated by A bluish-green color is formed indicating the presence of cholesterol.

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Five Experiment

Cupper acetate

This test is used for the differentiation between saturated fatty acid and unsaturated fatty acids.

:How to perform the test

1-Add I ml of each fatty acids (palmitic, stearic and oleic acids) in 3 ml of petroleum ether shake tubes in 3 test tubes .

A positive test is indicated by

The green precipitate is appearing in the bottom of tube if fatty acid is saturated (palmitic, stearic) . But if it is unsaturated fatty acids (oleic) the blue color in the upper solution will appear.

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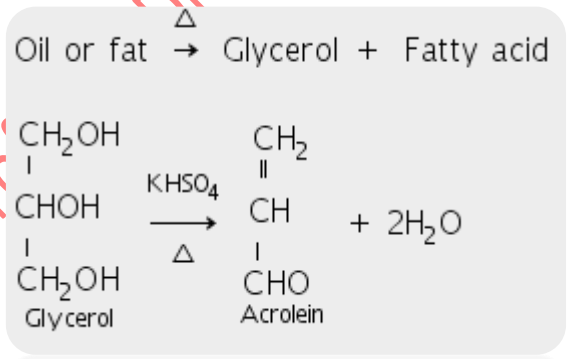
Six Experiment

Acrolein test

Object is used to detect the presence of glycerol or fat given by Acrolein test.

Principle:

On heating potassium hydrogen sulphate (KHSO4), glycerol become dehydrated to form an unsaturated aldehyde, called Acrolein that has a pungent irritating odour.



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Reagents

potassium hydrogen sulphate ($KHSO_4$) Soild, pure glycerol.

Procedure

Take two dry test tube and name them A,B

Put in test tube A two drop of pure glycerol.

Put in test tube B two drop of given liquid and potassium hydrogen sulphate in bath test tube.

Warm both test tube and mix, and then heat over a small flame.

Seven Experiment

Iodine Number

Iodine Number : mass of I2 (in g) that will react with 100g of fat

$$KCl + I2 \rightarrow ICl + Kl$$

$$Na_2S_4O_6 + 2NaI \rightarrow I_2 + 2Na_2S_2O_3$$

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