

Preliminary phytochemical studies analysis biology essay

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**ASSIGN
BUSTER**

The collected, cleaned and coarsely powdered of *Clerodendrum phlomidis* (Linn) was used for the extraction intents. 1kg of powdery foliages was used. It was so extracted with assorted dissolvers from non polar to polar such as Petroleum quintessence, Chloroform, Ethyl ethanoate and Methanol. The dissolvers used were distilled earlier usage. The extraction was carried out with assorted dissolvers by of hot soxhlet extraction for 72 Hrs. After each dissolver extraction, the infusions were filtered through whattmann filter paper to take any dross is present.

Preparation OF EXTRACTS

a) Petroleum ether infusion of foliages of *Clerodendrum phlomidis* (Linn) .

The air dried and coarsely powdered foliages stuffs 1000 gm was extracted with crude oil quintessence in the soxhlet setup. The soxhlexation procedure was carried out until the dissolver found to be colourless. Then the dissolver was filtered and distilled off. Finally hints of crude oil quintessence were removed under force per unit area by utilizing rotary vacuity flask evaporator.

B) Chloroform infusion of foliages of *Clerodendrum phlomidis* (Linn) .

The marc left after the filtration was air-dried and it every bit once more charged in the soxhlet setup with trichloromethane. The soxhlexation procedure was carried out until the dissolver found to be colourless.

Then the dissolver was filtered and distilled off. Finally hints of trichloromethane were removed under force per unit area by utilizing rotary vacuity flask evaporator.

degree Celsius) Ethyl acetate infusions of foliages of Clerodendrum phlomidis (Linn) .

The marc left after the filtration was air-dried and it every bit once more charged in the soxhlet setup with propanone. The soxhlexation procedure was carried out until the dissolver found to be colourless. Then the dissolver was filtered and distilled off. Finally hints of propanone were removed under force per unit area by utilizing rotary vacuity flask evaporator.

vitamin D) Methanol infusions of foliages of Clerodendrum phlomidis (Linn) .

The marc left after the filtration was air-dried and it every bit once more charged in the soxhlet setup with methyl alcohol.

The soxhlexation procedure was carried out until the dissolver found to be colourless. Then the dissolver was filtered and distilled off. Finally hints of methyl alcohol were removed under force per unit area by utilizing rotary vacuity flask evaporator. From the weight of the each extractive residue, the extractive values were calculated in per centum.

All the above infusions were used for designation of components by phytochemical trials and for the pharmacological surveies. The outputs of assorted infusion were shown in the Table No: 1.

Table No.**1****EXTRACTIVE VALUES OF THE LEAVES OF
CLERODENDRUM PHLOMIDIS (LINN)****S. No****Infusion****YEILD****(gram)****% Output****(w/w)**

1Petroleum quintessence14. 81. 482Chloroform8. 60.

863Ethyl ethanoate6. 30. 634Methanol82. 48. 24

QUALITATIVE PHYTOCHEMICAL ANALYSIS

Qualitative chemical trials were carried out for all the infusions of foliages of Clerodendrum phlomidis (Linn) to place the assorted phytoconstituents. The assorted trials and reagents used are given below and observations are recorded.

(Table No. 2)

Trials for saccharides:**Molish ‘ s trial:**

To 2-3 milliliter of infusion, added few beads of 1±-naphthol solution in

intoxicant, shaken and added concentrated H₂SO₄ signifier sides of the trial

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tubing was observed for violet ring at the junction of two liquids (Indian Pharmacopeia, vol II. 199) .

Fehling ' s trial:

1 milliliter Fehling ' s A and Fehling ' s B solutions was assorted and boiled for one minute. Added equal volume of trial solution. Heated in boiling H₂O bath for 5-10 min was observed for a yellow, so brick ruddy precipitate.

Benedict ' s trial:

Equal volume of Benedict ' s reagent and trial solution in trial tubing were assorted. Heated in boiling H₂O bath for 5 min. Solution may look green, xanthous or ruddy depending on sum of cut downing sugar nowadays in trial solution

Trials for Alkaloids

Mayer ' s trial:

To the 1 milliliter of infusion, add 1 milliliter of Mayer ' s reagent (Potassium mercuric iodide solution) . Milky yellow or pick colored precipitate indicates the presence of alkaloids.

Dragendroff ' s trial:

To 1 milliliter of the infusion, add 1 milliliter of Dragendroff ' s reagent (Potassium bismuth iodide solution) . An orangish-red precipitate indicates the presence of alkaloids.

Hager ' s trial:

To 1 milliliter of the infusion, add 1 milliliter of Hager ' s reagent (saturated aqueous solution of picric acid) . A xanthous coloured precipitate indicates the presence of alkaloids.

Wagner ' s trial:

To 1 milliliter of the infusion, add 1 milliliter of Wagner ' s reagent (Iodine in K iodide solution) . Formation of ruddy brown precipitate indicates the presence of alkaloids. (Kokate C. K et. al, 2007) .

Trials for Glycosides**Hydrolysis of infusion:**

A minimal measure of the infusions is hydrolyzed with hydrochloric acid for few proceedings on H₂O bath and the hydrolysate is subjected to the undermentioned trials.

A?) . Legal ' s trial:

To the hydrolysate 1 milliliter pyridine and few beads of Na nitropruside solution added, so it is made alkaline with Na hydrated oxide solution. Color alteration shows the presence of glycosides.

A? A?) . Borntrager ' s trial:

Hydrolysate is treated with trichloromethane and the trichloromethane bed is separated.

To this, equal measure of dilute ammonium hydroxide solution is added.

Color alterations in the ammonical bed shows the presence of glycosides.

Bal jet ' s trial:

A trial solution observed for yellow to orange colour with Na picrate.

Keller Killiani trial:

Dissolve the infusion in acetic acid incorporating hints of ferrous chloride and transportation to a trial tubing incorporating sulfuric acid. At the junction, formation of a ruddy brown colour, which bit by bit becomes bluish, confirms the presence of glycoside.

Trials for Phyto Steroids

Small measure of infusion is dissolved in 5 milliliter of trichloromethane individually. The above obtained chloroform solutions are subjected to Salkowski and Liebermann – Burchard trials (Harbone.

JB. 1973) .

Salkowski trial:

To the 1 milliliter of above prepared trichloromethane solution few beads of concentrated sulfuric acid is added. Formation of brown ring indicates the presence of phytosterols.

Liebermann – Burchard trial:

The above prepared chloroform solutions are treated with few beads of concentrated sulfuric acid followed by 1 milliliters of acetic anhydride solution. A blue green colour solution shows the presence of phytosterols.

Trials for Flavanoids

Shinoda trial:

To dried pulverization or infusion added 5 ml 95 % ethyl alcohol, few beads concentrated HCl and 0.

5 g Mg turnings. Pink colour was observed (Quality Control of Herbal Drugs. 2002) .

Ferric Chloride trial:

Test solution with few beads of ferrous chloride solution shows intense green colour.

Alkaline reagent trial:

Test solution when treated with Na hydrated oxide solution shows addition in the strength of xanthous colour, which becomes colourless on add-on of beads of dilute acid.

Lead Acetate solution trial:

Test solution with few beads of lead acetate solution (10 %) gives xanthous precipitates.

Trial for terpenoids

Dissolve 2 to 3 granules of Sn metal in 2 milliliter of thionyl chloride solution. Then add 1 milliliter of the infusion into the trial tubing.

The formation of a pink colour indicates the presence of terpenoids. 5 milliliter of aqueous infusion of each works sample is assorted with 2 milliliters of CHCl_3 in a trial tubing. 3 milliliter of concentrated H_2SO_4 is

carefully added to the mixture to organize a bed. An interface with a ruddy brown colour is formed if terpenoids component is present. (Journal of Medicinal Plants Research Vol. 3 (2) , pp. 068) .

Trials for Saponins

Foam trial:

The infusions are diluted with 20ml of distilled H₂O and so agitated in a calibrated cylinder for 15minutes. Formation of froth bed indicates the presence of saponins. (Khandelwal K. R, 2007) .

Hemolytic trial:

Added trial solution to one bead of blood placed on glass slide. Haemolytic zone whether appeared was observed.

Trials for Proteins and Amino acids

Biuret trial:

To 3 milliliters test solution added 4 % NaOH and few beads of 1 % CuSO₄ solution observed for violet or tap colour (Practical Pharmacognosy. 1996) .

Million ' s trial:

Assorted 3 ml trial solution with 5 milliliters Million ' s reagent, white precipitate. Precipitate warmed bends brick ruddy or hasty dissolves giving ruddy colour was observed.

Xanthoprotein trial:

Assorted 3 ml trial solution with 1 milliliters concentrated H₂SO₄ observed for white precipitate.

Ninhydrin trial:

3 ml trial solution and 3 beads 5 % Ninhydrin solution were heated in boiling H₂O bath for 10 min. observed for purple or blue colour

Trials for Tannins and Phenolic compounds

To 2 – 3 milliliter of infusion, add few beads of following reagents: 5 % FeCl₃ solution: deep blue – black colour. Lead acetate solution: white precipitate. Gelatin solution: white precipitate.

Bromine H₂O: decoloration of bromine H₂O. Acetic acerb solution: ruddy colour solution. Dilute iodine solution: transient ruddy colour. Dilute HNO₃: reddish to yellow colour.

Trial for Fixed Oils and Fats**Topographic point trial:**

Small measure of the infusion is placed between two filter documents. Oil discoloration produced with any infusion shows the presence of fixed oils and fats in the infusions.

Saponification trial:

Few beads of 0. 5N alcoholic K hydrated oxide are added to the infusion with few beads of phenolphthalein solution.

Subsequently the mixture is heated on H₂O bath for 1 - 2 hours soap formation indicates the presence of fixed oils and fats in the infusions.

Trial for Gums and Mucilage ' s

Ruthenium ruddy trial:

Small measures of infusion are diluted with H₂O and added with Ru ruddy solution. A pink colour production shows the presence of gums and mucilage ' s.

Table No: 2

**QUALITATIVE PHYTOCHEMICAL ANALYSIS OF
EXTRACTS OF LEAVES OF CLERODENDRUM
PHLOMIDIS (LINN)**

Trial OF EXTRACTS

Petroleum

Quintessence

Infusion

Chloroform

Infusion

ETHYL ACETATE

Infusion

Methanol

Infusion

Carbohydrates

—

—

+

+

Alkaloid

—

—

+

+

Glycoside

+

+

+

+

PHYTO STEROIDS

+

+

+

+

Flavonoid

-

+

+

+

TERPENOIDS

+

+

+

+

Saponin

—

+

+

+

TANNINS & A ; PHENOLIC COMPOUNDS

+

+

+

+

FIXED OILS & A ; FATS

+

—

+

+

GUMS & A ; MUCILAGES

—

+

+

+

PROTEINS & A ; AMINO ACIDS

—

+

+

+

(+) = indicates presence, (-) = indicates absence

Based on qualitative analysis we have selected Ethyl acetate infusion of Clerodendrum phlomidis (Linn) leaves for further surveys because Ethyl ethanoate infusion is holding more phytoconstituents when compared to all other infusions.