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Pharmacognostical Evaluation And Quantitative Estimation Of Hibiscus Rosa Sinensis

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Abstract

The current goal of this research is to bring to a close the ancient healers' traditional approaches to the plant Hibiscus rosa sinesis, which belongs to the Malvacae family. This plant is a gift from nature, as it boasts the ability to be used as a variety of herbs. The research we conducted focused on the Pharmacognostical, Phytochemical, and Physiochemical aspects of the entire plant. There has been a lot of talk about how active the plant is. Various diagnostic characters were found in morphological studies of the plant. For drug quality standards, the ash value, extractive value, and moisture content were determined Various phytoconstituents such as cyanidin-3-sophoroside-5-glycosides, Quercetin-3-diglucoside, 5-diglucoside, 3-7-diglucoside, and cyanidin-3 were found in the plant parts during the experiment. Anti-ovulatory, pain relief, antiviral, tumor-fighting, juvenoid action, antifertility, mitigating, hypotensive, anti-implantation, anti-estrogenic activity, and anti-depressant are all benefits of Hibiscus rosa sinensis. At the end it was concluded that aqueous and ethanolic extracts have some investigational properties

Keywords: Hibiscus rosa-sinensis Linn, Pharmacological activity, Marketed Formulation, Patent.

Introduction

The lovely flowering plant Hibiscus rosa sinensis is mostly found in south-east China and certain islands in the Pacific and Indian Ocean, earning it the nickname "Queen of the Tropics."
Hibiscus is one of Hawaii's most popular national flora, and it's frequently seen in hair during cultural events.[1,2] Furthermore, the juice collected from the leaves and blossoms has been used as a natural medicine for a variety of ailments and painful symptoms for a long time, as well as in herbal cosmetics as wilted[3,4]. The extract of dark flowers is used to manufacture eyeliners and shoe blacking .[4] Carolus Linnaeus, a prominent Swedish scientist, is said to have given the plant the name "rosa sinensis," which means "Rose of China" in Latin, in the early 1750s.[5] Hibiscus blossoms have traditionally been utilized as analgesics, antipyretics, anti-asthmatics, and anti-inflammatory medicines, as well as having anticancer effects. Several research have shown that Hibiscus rosa-sinensis flowers contain anti-oxidant, anti-fungal, and antibacterial activities.[6–13] Hibiscus rosa sinensis Linn (Malvaceae) is indeed a glabrous shrub that grows as a fancy plant in the tropics and has a few structures with changing shades of blossoms. The red flowered variety, on the other hand, is preferred in medicine.[14] Its leaves and petals have been thought to promote hair growth as well as aid in ulcer healing. Blossoms were known to be successful in the treatment of blood vessel high blood pressure and to have a

significant antifertility effect.[15–19] India is among the nations with a long history of traditional therapeutic systems as well as a diverse bio - diversity to supplement the herbal needs of the treatments provided by these traditional medicinal systems. Traditional health and human medication systems have been found to be more effective in medical issues around the world, according to the "World Health Organization." Ayurveda, Unani, and Siddha are three authorized Indian medical systems that use herbs and different assets in their formulations. [20,21].Hibiscus rosa sinensis L is a decorative plant that is commonly used as a support or fence plant. It is native to China, but it can also be found in India and the Philippines. This plant has a variety of structures and flower colors. This is a Malaysian national flower.[22] It is a conspicuous, perennial ornamental shrub, grows as an evergreen herbaceous plant and garden plant all over the universe. China rose are available various regions of Pakistan, native of Southeast Asia (south of China) and tropical Asia 10 Common Names The common names of Hibiscus rosasinensis are China rose, Chinese hibiscus, Jaswand, Shoe flower plant, Tropical hibiscus, Gurhal, Japaphool, Jaba, Joba, Japa, Sadaphool and Kante.[23,24].

Phytochemical Constituent

Alkaloids, resin, glycosides, diminishing sugars, greasy materials, sterols, and the absence of tannins and saponins were discovered in different extracts of Hibiscus rosa sinensis. In the leaves, researchers found - sitosterol, taraxeryl acetic acid derivation, and four unidentified compounds, including an alkaloid and three sterols. The greasy liquor, unsaturated fats, and hydrocarbon content of Hibiscus rosa-sinensis leaves were also studied.[25] Malvalic and sterculic cyclic acids have also been identified. Vitamins, ascorbic acid, flavonoids, riboflavin, niacin, thiamine, and cyaniding di-glucoside are all found in flowers. 3-7- di-glucoside, cyanidin-3-sophoroside-5-glycosides, 3-7- di-glucoside, Quercetin-3-diglucoside, cyanidin-3, 5-diglucoside, 3-7- di-glucoside have been disengaged from profound yellow flowers.[26]

Plant Collection

An herbarium specimen of Hibiscus flower was obtained out from flowerbeds of District Hospital Amroha, U.P., and authenticated by Forest Research Institute Dehradun, Uttarakhand, India. An herbarium sample has been stored in the department of Botany with Ref. No. No dis 584/2019/Sys.Bot./Rev.Gen.4-5.[27,28]

Extract Preparation

Flowers of Hibiscus rosa sinensis were collected from Amroha gardens, dried in the shade, and coarsely powdered. After that, the mixture was sieved through sieve number 20. Using a Soxhlet extractor, a weighted quantity (360g) of powder drug was extracted with petroleum ether (60-800C). The defatted drug was extracted with ethanol and dried in a desiccator after the solvent was removed. After ethanolic extraction, the marc was macerated for seven days to extract aqueous extract, which was then evaporated and stored for future use.[29,30]

PHARMACOGNOSTIC EVALUATION

Organoleptic Evaluation

In the organoleptic assessment, different tangible parameters of the plant material, for example, shading, smell, taste, shape, and surface of the root recoded.

Fluorescence Analysis

To observe characteristic color presentation, leaves powder was treated with various chemicals and observed exclusively to different wavelengths of ultra violet (254 nm and 365 nm) and visible light.

Method: Drug powder was suspended in the dissolvable and a drop of blend put on the glass slide and watched the under the U V bureau (under long, short and noticeable UV). Institutionalization of Hibiscus rosa-sinensis per W.H.O rules and pharmacopeia.[31].

MOISTURE CONTENT (LOSS ON DRYING)

A built up inquire about office procedure for evaluating suddenness level in solid or semisolid material is hardship on drying. The disaster on drying tests which arrangement to check the measure of water and flimsy issues in the

illustration, when test is dried under demonstrated conditions.

Method: Firstly, 3gram of shade-dried solution (Hibiscus rosa-sinensis.) taken said something petri dish. By then dried in the grill at 100° or 105° C after that cool in desiccator and weighed. This strategy reiterated till we get the steady weight. Figured the mishap in weight was normally recorded as clamminess content in test.

$$\textbf{Loss on drying (\%)} = \frac{\textbf{Weight loss}}{\textbf{Weight of drug}} \times 100$$

DETERMINATION OF FOREIGN MATTER

Isolated subject is issued comprising of any or the greater part of the accompanying:
Sections of natural materials or components besides those listed with breaking points that are specified for the homegrown material in question ;
A certain life form, part of a life form, or result of a life form that isn't named in the description and illustration of the natural material in question ;
Mineral admixtures that do not adhere to natural materials like soil, stones, or dust strategy.

Method: 25 gm of leaves powder taken and Dispersed it out thinly and arrange the remote issue into groups using a basic magnifying lens or by visual inspection. Measure the parts of this outside issue that are arranged. This technique was taken according to world health organization .Remote issue is material comprising of any or the greater part of the accompanying:

- Parts of natural materials or materials other than those named with breaking points, specified for the homegrown material in question;
- Each and every life form, part of a life form, or result of a life form that is not named in the detail and depiction of the natural material in question ;
- Mineral admixtures that do not adhere to natural materials such as soil, stones, and dust.

25 gm of leaf powder was taken and Spread it thinly and group the distant issue into groups, either visually or with a basic magnifying lens.. Measure the parts of this arranged outside issue.

$$\textbf{\% Foreign matter} = \frac{\textbf{Weight of shorted foreign matter}}{\textbf{Weight of drug}} \times 100$$

DETERMINATION OF ASH VALUE

The determination of Ash values aids in determining a crude drug's quality and purity. Ash contains in- organic compounds like phosphates, carbonates, silicates potassium, magnesium, calcium etc. Such compounds are removed by treating with water acids (HCl and H_2SO_4) was measured.

Total Ash value

Total ash is the amount of material that remains after ignition. This includes both physiological and non-physiological ashes, which are extraneous matter residues that adhere to the plant surface.

Method: To begin, ignite a porcelain crucible and then cool and weigh about 3g of powdered drug into the dish/crucible and incinerated in a crucible drug present in a crucible at a temperature 500-600 C in an electric furnace it until carbon-free ash obtained then cold, weighed further percentage of yield was be calculated.

$$\textbf{Total ash}\ (\%) = \frac{\textbf{weight of ash}}{\textbf{weight of drug}} \times 100$$

Calculation of Water-Soluble Ash

Water Soluble Ash is the weight difference between the aggregate fiery remains and the aggregate slag buildup after water treatment.

Method: 25 ml water added to cauldron containing all out fiery remains and bubbled for 5 minutes. The immiscible matter was assembled on Whatman channel paper and washed in boiling water. For 6 hours at 500-600 degree Celsius, channel paper was exchanged for a unique pot and lighted cauldron.. The heaviness of this deposit was subtracted from the heaviness of aggregate fiery remains which water-dissolvable powder tranquilizes. Water solvent fiery remains (%) figured utilizing the equation given below.

$$\textbf{Water soluble ash}\ (\%) = \frac{\textbf{Weight of water soluble ash}}{\textbf{Weight of drug}} \times 100$$

Determination acid insoluble ash value

Acid insoluble fiery remains are the deposit acquired in the wake of heating up the aggregate powder with weakens hydrochloric corrosive and touching off the staying insoluble issue. This quantifies the measure of silica show, particularly as sand as well as siliceous earth.

Method: For 5 minutes, total slag is overflowed with 25 ml of weak Hydrochloric corrosive. On Whatman channel paper, the unsolvable problem gathered. It was cleaned in hot water until the unbiased filtrate and crease were removed. Put Whatman paper in the pot and light for 6 hours at 500-600 degree Celsius . The suppress heater turned off and permitted to cool. Cauldron is evacuated, cooled in desiccator and deposit weighed. Corrosive insoluble fiery debris in rate was ascertained from the accompanying equation below.

$$\textbf{Acid insoluble ash}\ (\%) = \frac{\textbf{weight of acid insoluble ash}}{\textbf{weight of drug}} \times 100$$

EXTRACTIVE VALUES DETERMINATION

The weight of residue obtained after extraction of the crude drug with a specific solvent is known as extractive value. Alkaloids, glycosides, tannins, triterpenoids, and other phytoconstituents are found in the residue. The composition of these phytochemical compounds in that specific solvent is determined by the nature of the drug and the solvent used. The extractive value of powder root was determined using and the Ayurvedic Pharmacopoeia of India [31].

Method : Parts of the plant like leaves were left to dry in the shade for 25 days before being ground with an electric mixer-grinder and screened through a BSS no. 22 sieve. The powdered crude drug (100g) was extracted in a Soxhlet extractor with petroleum ether, chloroform, ethanol, ethanol, and water separately to extract non-polar and polar compounds. The extracts was concentrated and evaporated in a water bath after being filtered through Whatman filter paper. The residual moisture in the extract was removed by drying it in an oven and then storing the powdered extracts in a desiccator.

$$\textbf{\% Extractive value} = \frac{\textbf{yield of drug}}{\textbf{weight of drug}} \times 100$$

SWELLING INDEX

Many restorative plant materials, particularly gums and those containing an obvious mount of adhesive, gelatin, or hemicelluloses, are of particular remedial or pharmaceutical utility due to their swelling properties. The swelling file represents the volume in millimeters occupied by 1g of plant material swelling under specified conditions. Its assurance is entirely dependent on the expansion of water or the swelling of an operator, as specified in the test strategy for each home-grown material (either entire, cut or pummeled).

Technique: Drug (1g) was taken in a 100 ml estimating barrel 25ml of water was included and the blend was Shaked completely. The blend was left aside for 4 hours at room temperature. After the 24 hours, volume in ml possessed by the plant material was estimated, including sticky adhesive than QS up to 100ml and shaken well for additionally kept into 24 hours.
Calculated the mean value 1 g of herbal material as per formula

$$\textbf{Swelling index}\left(\%\frac{\mathbf{V}}{\mathbf{V}}\right) = \frac{\textbf{Volume of drug} - \textbf{volumeof drug after swelling}}{\textbf{volume of drug}} \times 100$$

DETERMINATION OF FOAMING INDEX

Frothing list is the froth stature created by 1g plant material under particular conditions. When a fluid decoction is shaken, saponins in many medicinal plant materials can cause persistent froth. A frothing file was used to estimate the foaming capability of a watery decoction of plant and their concentrates.

Method: According to W.H.O plant materials (1g) is decreased to a coarse powder, measured precisely and exchanged to a 500 ml tapered

carafe carries 100ml of bubbling H_2O. After 30 minutes of direct bubbling, the mixture was cooled and separated into the 100ml volumetric flagon and the water volume. Obtained decoction was filled in 10 plug test tubes in a progressive part of 1 ml, 2 ml, 3ml and so on up to 10 ml, and Q.S the volume of the fluid in each test tube with water to 10 ml. Ceased tubes was moved in a longitudinal movement for 15 sec. at the rate of two shakes for each second. A tube was permitted to remain for 15 minutes took after by estimation of the tallness of the froth. Frothing file is ascertained by frothing list equation.

$$\textbf{foaming index} = \frac{\mathbf{1000}}{\mathbf{a}}$$

CHEMO-PROFILING OF DIFFERENT EXTRACTS

PHYTO-CHEMICAL SCREENING

Different subjective substance tests were performed on root concentrates to determine the proximity of various phytoconstituents such as alkaloids, glycosides, sugars, phenolic and tannin, flavonoids, saponins, settled oils and fats, proteins, amino acids, and so on.

Alkaloids: The dehydrated concentrate was handled with a weak HCL , shaken thoroughly, and afterwards separated. The filtrate has also been used in a one-of-a-kind test...

Mayer's test: Filtrates was mixed with Mayer reagent. The close proximity of alkaloids is demonstrated by the arrangement of a yellow cream hasten.

Wagner's test: Filtrates have been given allowed to be treated with Wagner reagent. The development of no brown and reddish-brown ppt confirms the occurrence of alkaloids..

Dragendorff's test : Filtrates was handled with reagent. The proximity of alkaloids is demonstrated by the arrangement of red hasten.

Hager's test : Filtrates were exposed to a saturated picric acid solution. The arrangement of yellow hasten demonstrates close proximity of alkaloids..

Carbohydrates

Molisch's test: Extracts was handled with a dipsomaniac setup inside a test tube as well as concentrated sulfuric acid has been included precisely at the boundaries of the test tube. The violet ring that forms at crossing assures that starches are close together.

Fehling's test: Filtrate was fermented with weaken hydrochloric corrosive, killed with soluble base and warmed for 510 moment on water shower in the wake of including Fehling A and B arrangement. Initially yellow, at that point a block red accelerate showed the nearness of diminishing sugars.

Glycosides

To quantify the sugar substance of the concentrate, the extract was hydrolyzed with mineral corrosive. Once more, determine the total sugar content of the hydrolyzed remove. Glycosides are revealed when the sugar content is increased.

Legal's test: Sodium nitroprusside in pyridine and methanolic soluble base were used to treat the concentrate. The proximity of cardiac glycosides was shown by the pink to red color arrangement.

Kellar Killiani test: In 2ml of frosty acidic corrosive containing one drop of ferric chloride arrangement, a small amount of dried concentrate was broken down. After expanding 1ml of concentrated H2SO4, these lasted quite a while. When cardenolides are close by, a darker ring forms.

Glycosides (Saponin)

Froth test: In a graduated barrel, the focus was weakened with 20ml of refined water and 15 minutes of shaking. The proximity of saponins is demonstrated by a layer of foam measuring about 1cm thick..

Flavonoids

Shinoda test: A small amount of dried concentrates was filtered after being evacuated with 10ml of ethanol for 15 minutes on a gurgling water shower. A smidgeon of magnesium bind and conc. HCl were added to the filtrates. The closeness of flavonoids is demonstrated by the action of pink shading.

FeCl3 test: To the example arrangement, included FeCl3 arrangement. A difference in shading from green to dark shows the nearness of flavonoids.

Proteins and Amino acids

Million's test: The concentrates were given the Million's reagent treatment. The proximity of proteins and amino acids is demonstrated by the arrangement of a white hasten that swung to red after warming..

Ninhydrin test: To the concentrates, 0.25% 2,2-dihydroxyindane-1,3-dione was included and Bubbled for couple of min. . Arrangement of blue shading shows nearness of amino acids.

Tannins

Ferric chloride test: A few ml of nonpartisan ferric chloride were added to the concentrate. Alternative (5 percent). The close proximity of tannins is indicated by the arrangement of pale blue dark shading.

Lead acetic acid derivation test: A few ml of unbiased Lead acetic acid derivation arrangement were added to the concentrate (10 percent). The rapid development of yellow indicates the presence of tannins.

Steroids and Triterpenoids

Liebermann Burchard test: Ethanol, chloroform-ethyl acetic acid derivation, and ethanol was added to the dried concentrates. 1 to 2 drops of concentrated sulphuric corrosive are added to the above mixture. The Sol. dim green tint indicates the presence of steroids, while the arrangement's dim pink hue confirms the existence of triterpenoids

Salkowski response: Chloroform has been incorporated to the dehydrated concentrates, accompanied by a few ml of concentrated sulfuric acid , stirred vigorously, and left to sit for an extended period of time. The presence of red shading in the bottom level confirms the presence of steroids, whereas the occurrence of triterpenoids is indicated by the development of yellow color in the lower layer.

QUANTITATIVE ESTIMATION OF PHYTOCONSTITUENTS

Total Phenolic Content Determination

The aggregate phenolic substance of all concentrates of the medication was decided as per the technique depicted in APC of India. The aggregate phenolic content communicated in mg of Gallic acid reciprocals / gm of concentrate. Stock arrangement (1 mg/ml) of the concentrate in methanol was readied. A suitable amount of the concentrate was taken from the stock arrangement and placed in the 25ml volumetric flagon, along with 10 ml of water and 1.5 ml of folin ciocalteu reagent. After 5 minutes, add 4 ml of 20 percent sodium carbonate solution and Q.S up to 25 ml with twofold refined water. After 30 minutes, the absorbance at 765nm was ,measured. Calculated level of aggregate phenolics from the adjustment bend of gallic corrosive arranged by utilizing the above method.

Total phenolic content (% w/w) = GAE×V×D×10–6×100/W

GAE-Gallic acid equivalent (μg/ml),
V-Total volume of sample (ml),
D-Dilution factor,
W-Sample weight (gm)

Reagents

Na_2CO_3 arrangement (20%): In 100 mL of water, 20 g sodium carbonate was dissolved., then separated after allowing it to withstand a medium-term Gallic corrosive stock arrangement (1 mg/ml): In 10ml refined water, 10 mg gallic corrosive was disintegrated.

Flavonoids Content Determination

Aluminum chloride technique was utilized for the estimating the aggregate flavonoids substance of the concentrates plant root. Aliquots of concentrate arrangements were taken, with a total volume of 3 ml in ethanol. 0.1 ml $AlCl_3$ (10%), 0.1 ml potassium acetic acid derivation (1 M), and 2.8 ml refined water were occasionally added at that time. The test setup was continuously Shaked. The absorbance at 415 nm is measured after 30 minutes of brooding. At 415 nm, a standard adjustment plot was created using known rutin groupings.

Reagents

$AlCl_3$ arrangement 10 %: 10g $AlCl_3$ have been broken up in 100 ml methanol.

1M Potassium acetic acid derivation arrangement: In 100 mL of refined water, 9.815g potassium acetic acid derivation was broken up.

Rutin (1 mg/ml) standard arrangement: In 10 mL methanol, 10 mg rutin was broken up.

RESULTS

PHYSICOCHEMICAL PARAMETERS

The physio - chemical specifications could be used as a valuable data source and used to assess the immaculateness and nature of rough medications. The dampness substance of root powder was almost (5.34± 0.42 % w/w) which is by all accounts lower than that important to help the development of microorganisms like shape, microscopic organisms, yeast, and growths to get the progressions the compound structures of the rough medications. Add up to Ash estimations of the medication given a thought regarding inorganic structure like hearty issue and different debasements display alongside the medication. The aggregate slag, water-solvent fiery debris, and corrosive insoluble cinder were observed to be 9.20 ±0.17, 3.1 ±0.05 and 1.25 ±0.11% w/w, separately. The extractive qualities are given a thought regarding phytoconstituents of rough medications. Be that as it may, extractive estimations of plant attaches were observed to be 11.54±0.46 % w/w liquor dissolvable and 12.66 ± 0.56% w/w water solvent extractives individually given in Table.1.1

Table 1.1 Physicochemical Parameters of Caesalpinia crista L. root

Parameter	Results (%w/w)
Quantity of moisture	5.21 ± 0.42
Total ash	8.20±0.17
Water soluble ash	2.90±0.05
Acid-insoluble ash	1.25±0.11
Swelling index	Absent
forming index	Absent
Soluble Alcohol extract	11.44±0.46
soluble H_2O extract	12.86±0.56

PHYTOCHEMICAL SCREENING [Initial]

Table 1.2 shows the results of a qualitative preliminary phytochemical screening of Hibiscus rosa-sinensis leaves.

Tab. 1.2 Preliminary screening of Hibiscus rosa-sinensis leaves

Class of constituents	PETROLEUM ETHER	ETHANOLIC EXTRACT	Aqueous extract
Amino acids	-	-	-
Proteins	-	-	-
Carbohydrates	-	+	+
Steroids/Triterpenoids	+	+	-
Alkaloids	-	+	+
Saponin	-	-	+

Flavonoids	-	-	+
Tannins	-	+	+
Phenolics	-	-	+

TOTAL PHENOLIC CONTENT DETERMINATION

Overall phenols were determined quantitatively with a help of gallic acid standard curve, and the calibration curve was found to be linear (figure 1.3). The total phenolic content of Hibiscus rosa sinensis hydro alcoholic extracts was also determined. Table 1.3 shows the amount of phenolics present in hydroalcoholic extract.

Table 1.3 Total phenolic content of Gallic acid (standard drug)

S.No.	CONCENTRATION (ug/ ml)	ABSORBANCE ƛ max = 765 nm
1	0	0.000
2	2	0.110
3	4	0.243
4	6	0.363
5	8	0.521
6	10	0.633
7	12	0.811

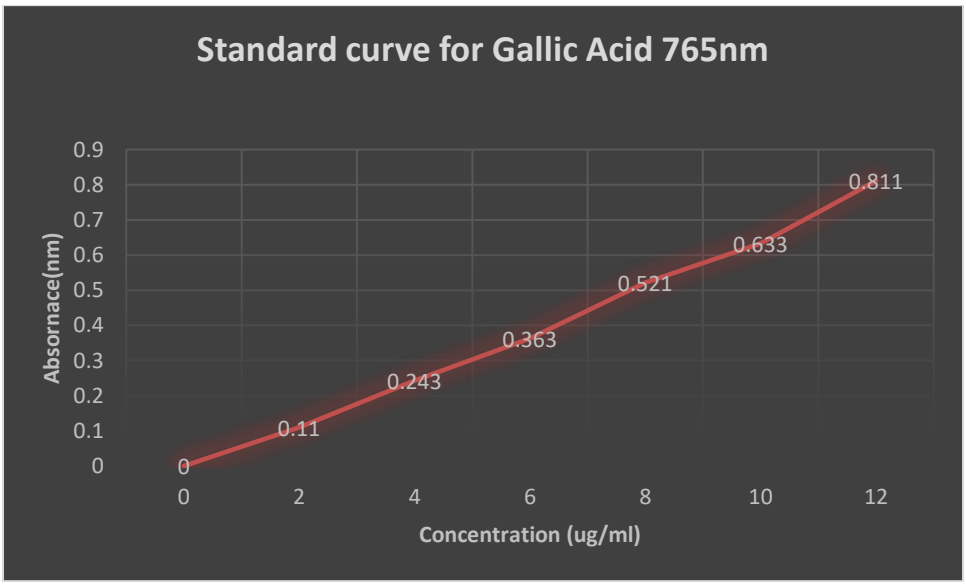
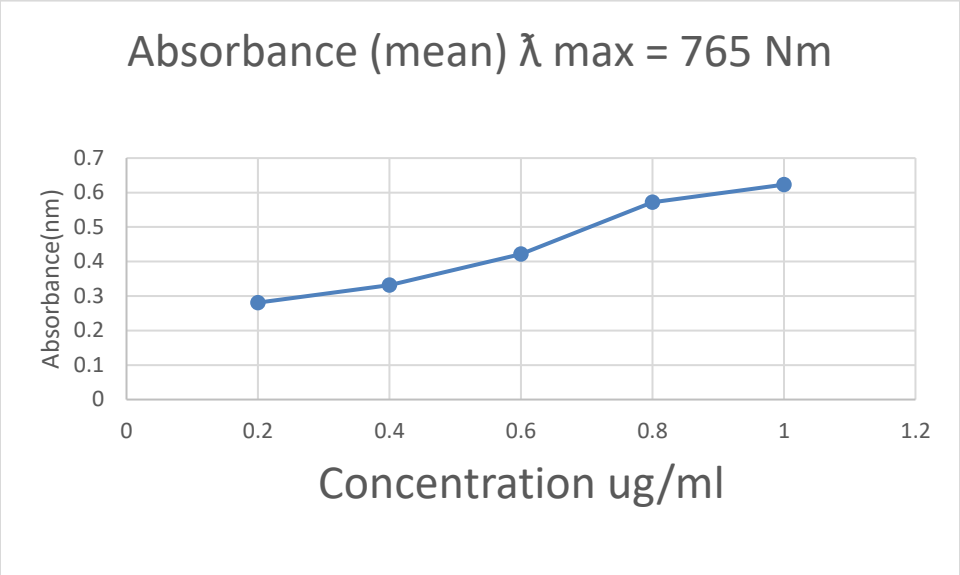


Figure .1.1 - Calibration Curve of Std. Curve of $C_7H_6O_5$ (y = 0.134 x - 0.159

R^2 = 0.993

Table 1.4 Absorbance of Hibiscus rosa-sinensis. (Hydro- Alcoholic Extract)

S.No.	Concentration (ml)	Absorbance (mean) ƛ max = 765 nm
1.	0.2	0.281
2.	0.4	0.332
3.	0.6	0.422
4.	0.8	0.572
5.	1.0	0.623



TOTAL FLAVONOIDS CONTENT DETERMINATION

The overall flavonoids quantity was measured quantitatively using Rutin standard curve, and the calibration curve was found to be linear (figure 1.5). The total Flavonoids content of Hibiscus rosa sinensis hydro alcoholic extracts was also determined. Table 6.8 shows the amount of flavonoids present in hydroalcoholic extract.

Table 1.5 Total Flavonoids Content of Rutin

S.NO	CONCENTRATION (ug/ ml)	ABSORBANCE
I.	0	0
II.	10	0.123
III.	20	0.243
IV.	40	0.414
V.	60	0.680
VI.	80	0.711
VII.	100	0.980

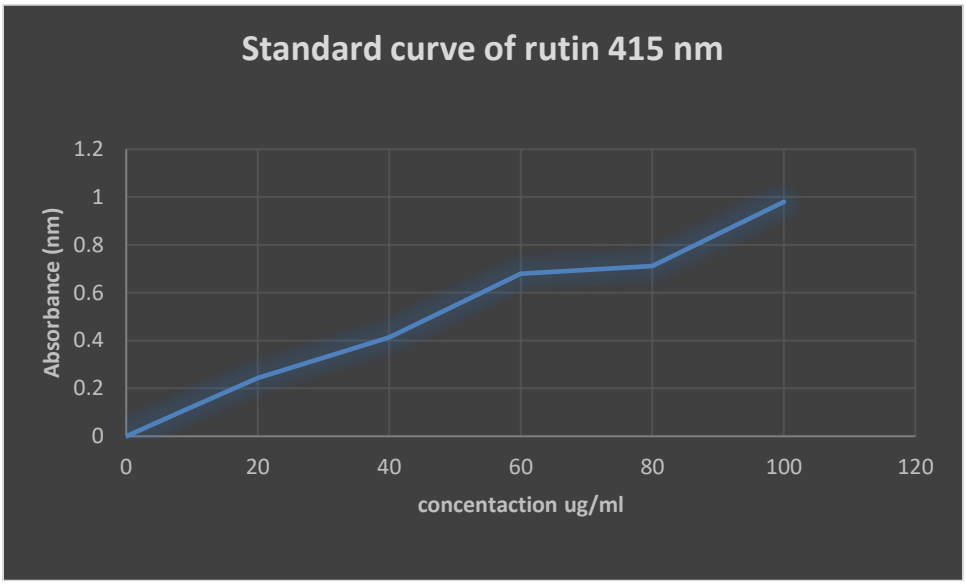


Figure 1.4 Calibration Curve of Std. Curve Rutin (y = 0.009x + 0.029 R^2 = 0.99)

Table 1.6 Absorbance of Hibiscus rosa-sinensis. (Hydroalcoholic extract)

S.NO.	Concentration (µg/ml)	Absorbance (mean) ƛ max = 415 nm
1.	0.2	0.030
2.	0.4	0.121
3.	0.6	0.231
4.	0.8	0.382
5.	1.0	0.480

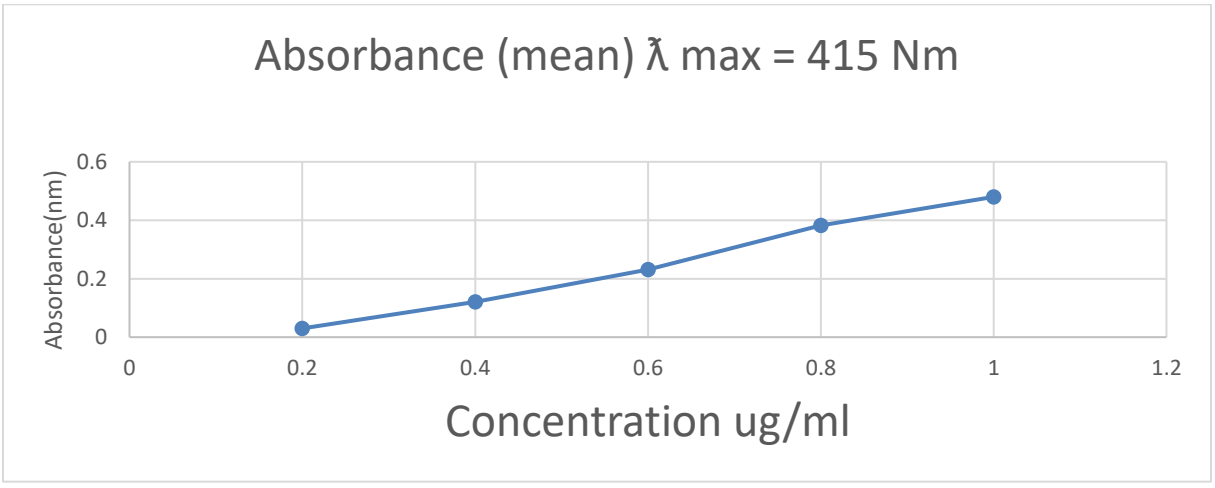


Fig. 1.5 Absorbance of tests compound (hydro- alcoholic extract) (y = 0.436x - 0.050 R^2 = 0.993)

DEVELOPMENT OF CHROMATOGRAM

For the separation of quantitative evaluation performed with special solvents, which have been subjected for development of chromatogram of Hibiscus rosa-sinensis leaves is mentioned in fig.1.6. Thin Layer Chromatography Development of Chromatogram Different Extract of Hibiscus rosa-sinensis is mentioned in table 1.7.

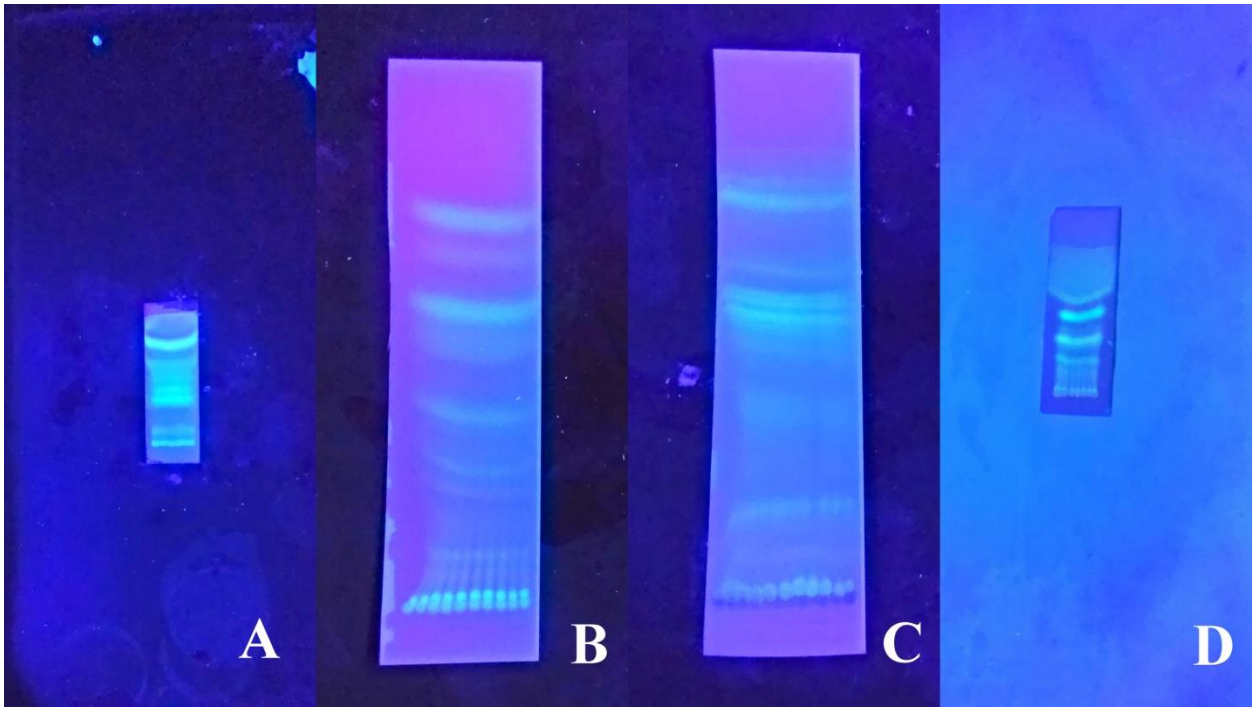


Fig. 1.6 Development of Chromatogram: A-Petroleum ether

B-Chloroform

C-ethyl acetate

D- Hydroalcoholic

Table 1.7 Thin Layer Chromatography Development of Chromatogram Different Extract of Hibiscus rosa-sinensis

S.No.	Extract	Solvent System	No. of sport	RF value
A	**Pet. ether**	Toluene : Ethyl acetate (16:4)	6	0.08, 0.37, 0.5, 0.6, 0.7, 0.8
B	**Chloroform**	Toluene : Ethyl acetate (7:2)	9	0.1,0.2,0.4,0.52, 0.6,0.65,0.7, 0.8, 0.9
C	**Ethyl acetate**	Toluene: Ethyl acetate (7:3)	7	0.14, 0.21, 0.42, 0.57, 0.6, 0.71, 0.85
D	**Hydroalcoholic**	N- hexen : ethyl acetate (7:3)	5	0.3, 0.5, 0.6, 7.54, 0.83

CONCLUSION

As a result, the aqueous and ethanolic extracts of Hibiscus rosa sinensis have significant abortion compared to the tested but are not superior to the benchmarks. In the upcoming years, our department will conduct research to determine the recommended mode of action as well as to recognize the phytochemical functional group liable for this behavior.

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REFERENCES

1. Braglia L, Bruna S, Lanteri S, Mercuri A PE. An AFLP-based assessment of the genetic diversity within Hibiscus rosa-sinensis and its place within the Hibiscus genus complex. Sci Hortic. 2010;123(3):372–8.
2. Melzer MJ, Simbajon N, Carillo J, Borth WB, Freitas-Astúa J, Kitajima EW et al. A cilevirus infects ornamental hibiscus in Hawaii. Arch Virol. 2013;158(11):2421–4.
3. Reddy UK, Rajesh S, Sindhu G AB. Herbs used in formulating poly herbal hair oil – a review. Indo Am J Pharm Res. 2017;4(6):1527–39.
4. Kumari OS, Rao NB RV. Phyto-chemical analysis and antimicrobial activity of Hibiscus rosa-sinensis . World J Pharm Pharm Sci. 2015;4(5):766–71.
5. Gomare KS MD. FTIR spectroscopic analysis of phytochemical extracts from Hibiscus rosa–sinensis L. used for hair disorder. Int J Recent Trends Sci Technol. 2018;70–5.
6. Vastrad JV BS. Phytochemical screening and antibacterial activity of Hibiscus rosa - sinensis leaf extracts. Int J Curr Microbiol Appl Sci. 2018;7(3):3329–37.
7. Hemarana K, Jeyashree KV, Babu M KM. Preliminary bioactive compounds screening and antibacterial activity of methanolic extract of Hibiscus rosa sinensis against selected skin pathogens. Res J Pharm Biol Chem Sci. 2014;5(2):1210–8.
8. Tiwari U, Yadav P ND. Study on phytochemical screening and antibacterial potential of methanolic flower and leaf extracts of Hibiscus rosa sinensis . Int J Innov Appl Res. 2015;3(6):9–14.
9. Ruban P GK. In vitro antibacterial activity of Hibiscus rosa-sinensis flower extract against human pathogens. Asian Pacific J Trop Biomed. 2012;2(5):399–403.
10. Abdel Ghaffar FR E-EI. In vitro, antioxidant and scavenging activities of Hibiscus rosa sinensis crude extract. J Appl Pharm Sci. 2012;2(1):51–8.
11. Arullappan S, Muhamad S ZZ. Cytotoxic activity of the leaf and stem extracts of Hibiscus rosa sinensis (malvaceae) against leukaemic cell line (k-562). Trop J Pharm Res. 2013;12(5):743–6.
12. Kandhare AD, Raygude KS, Ghosh P, Ghule AE, Gosavi TP BS, Al. E. Effect of hydroalcoholic extract of Hibiscus rosa sinensis Linn. leaves in experimental colitis in rats. Asian Pacific J Trop Biomed. 2012;2(5):337–44.
13. Soni D GA. An evaluation of antipyretic and analgesic potentials of aqueous root extract of Hibiscus rosa sinesis Linn. (malvacae). Int J Res Phytochem Pharmacol. 2011;1(3):184–6.
14. M A, SH A. Hair care and herbal drugs. Ind J Nat Prod. 1997;13:3–5.
15. PN K, P J. Handbook of Medicinal plants,New Delhi. 1979. 86 p.
16. RN D, SP P, VJ T. Role of Japapushpa in the treatment of arterial hyper-tension. A trial study. J Res Indian Medi- cine, Yoga Homeopath. 1977;12:13–36.
17. N S, D N, RK S. Teratological study of an

indigenous antifertility medicine, Hibiscus rosa-sinensis in rats. Arogya J Heal Sci. 1986;12:86–8.

18. MP S, RH S, Udupa K. Antifertility activity of a benzene extract of Hibiscus rosa- sinensis flowers on female albinorats. Planta Med. 1982;44:171–4.

19. Kumar S, Kumar VS, Sharma A, Shukla YN SA. Traditional medicinal plants in skin care, Central Institute of Medicinal and Aro-matic Plants, Lucknow. 1994. 103 p.

20. Satyavati GV, Gupta AK TN. Medicin- al plants of India, Indian Council of Medical Research. 1987. 2 p.

21. Twilley, D., Langhansova, L., Palaniswamy, D. and Lall N. Evaluation of traditionally used medicinal plants for anticancer, antioxidant, anti-inflammatory and anti-viral (HPV-1) activity. South African J Bot. 2017;112:494–500.

22. A B. Evaluation of hypolipidaemic activity of Hibiscus rosa sinensis L. J Pharm Res. 2011;4(10):3293–4.

23. Nade VS, Kawale LA, DwivediS YA. Neuropharmacological evaluation of Hibiscus rosa sinensis roots in experimental animals. J Nat Remedies. 2009;9(2):142–51.

24. Jadhav VM, Thorat RM, Kadam VJ SN. Hibiscus rosa sinensis Linn '"Rudrapuspa"': A Review. J Pharma Res. 2009;2(7):1168–73.

25. Srivastava DN, Bhatt SK UK. Gas chromatographic identification of fatty acids, fatty alcohols and hydrocarbons of Hibiscus ro- sasinensis leaves. J Amer Oil Chem Soc. 1976;53:607.

26. CP K. Enclyclopedia of Indian Medicinal Plants. New York. Springer- Verlag Berlin Heidelb. 2004;248–9.

27. SG J. Medicinal Plants, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi. 2004. 255 p.

28. The Wealth of India – Raw Materials, Vol-5, Council of Scientific and Industrial Research, New Delhi. 1992. 91–92 p.

29. Sangeetha, G. and Vidhya R. In vitro anti-inflammatory activity of different parts of Pedalium murex (L.). Inflammation. 2016;4:5.

30. Phoneke G. The Wealth of India: Raw Materials, a Dictionary of Indian Raw Material and Industrial Products, Publications and information directorate, CSIR, Dr. K. S. Krishnan Marg, New Delhi,Vol. 3C_a-C_i. 1992. 10–11 p.

31. Government of India, Ministry of Health and Family Welfare, AYUSH, New Delhi, Part-II. The Ayurvedic Pharmacopoeia of India. 2008;2(1):263–167.