

Pharmacognostic and Pharmacological review on herbal plant: *Hibiscus rosa sinensis* Linn

Shrinivas K Sarje^{1*}, Shital Narwade¹, Mahesh Thakur¹, Nitin B Ghiware¹

¹Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India

Abstract : Plants have been a source of medicinal compounds since ancient times and have been used to treat various diseases in humans as well as animals. Many of the modern clinical drugs are of natural origin. Over 50% of all modern clinical drugs are of natural product origin and play an important role in drug development programs in the pharmaceutical industry. *Hibiscus rosa sinensis* is one of the miraculous medicinal herbs. *Hibiscus rosa sinensis* Linn. Is certain to emerge in the near future as a major player in the growing field of herbal health supplements and medicines both in daily self-care and in professionally managed health care system. This article compile all the information related to *Hibiscus rosa sinensis* Linn.
Keywords : *Hibiscus rosa sinensis*, Malvaceae, Traditional medicine Pharmacology.

Introduction

Nature has been a source of medicinal agents for thousands of years and an impressive number of modern drugs have been isolated from natural sources, many based on their use in traditional medicine. In recent years, focus on plant research has increased all over the world. *Hibiscus rosa sinensis* a well known member of the family Malvaceae, *Hibiscus rosa sinensis* grows as an evergreen herbaceous plant. A native to tropical and sub-tropical regions, this plant is extensively cultivated as an ornamental plant.¹ It bears large flowers on the bushy hedges. These enormous flowers are usually dark red in color and are not usually fragrant. Today, various new varieties have been cultivated and developed through cross breeding. Different cultivars and hybrids have been produced and developed with flowers ranging in colors and other features. Prominent colors that have been promoted in the recent past are white, yellow, orange, scarlet and different shades of pink. *H. rosa sinensis* has been used for the treatment of a variety of diseases.²

Origin and Distribution

It grows on its own in tropic and sub tropic regions of the world. *Hibiscus rosa sinensis* are native to Tropical Asia. A native of Southeastern Asia (China), the plant is commonly found throughout the tropics and as a house plant throughout the world. Most ornamental varieties are hybrids. It is grown as an ornamental plant in gardens throughout India and often planted as a hedge or fence plant.³

Common Name

China rose, China rose plant, Gudhal, Gurhal, Jaba, Mandaar, Japaphool, Jasum, Jasunt, Jaswand, Jiapushpa

Vernacular Names

English- Shoe-flower plant, Chinese Hibiscus.

Hindi- Jasut, Jasum, Java, Odhul, Gurhal, Arahul.

Marathi- Jasavanda, Jassvandi.

Sanskrita- Japa, Java, Rudrapuspa, Aundrapuspa, Trisandhya.

Bengali-Joba, Jiwa, Oru.

Gujrati -Jasvua, Jasunt.

Kannada - Dasavala.

Malayalam-Himbarathi, Ayamparatti, Chebarathi.

Punjabi - Jasum, Jaipushpa, Gurhal.

Tamil - Sapattuu, Semparutti.⁴

Plant Profile

Botanical Name: *Hibiscus rosa-sinensis* L.

Kingdom; *Plantae*

Subkingdom: *Tracheobionta*– (Vascular plants)

Super division: *Spermatophyta*– (Seed plants)

Division: *Magnoliophyta*–(Flowering plants)

Class: *Magnoliopsida*–(Dicotyledons)

Subclass: *Dilleniidae*

Order: *Malvales*

Family: *Malvaceae*

Genus: *Hibiscus*

Species: *Hibiscus rosa-sinensis*⁵

Plant Type : Shrub or Small tree

Parts used: Flowers, leaves and root

Description of the Plant

Roots: Cylindrical of 5-15 cm length and 2 cm in diameter, off white in colour light brown transverse elenticies. Its fracture is fibrous. Roots taste sweet and mucilaginous.

Leaves: Leaves are simple ovate or ovate- lanceolate.

Leaves are entire at the base and coarsely toothed at the apex. Taste is mucilaginous.

Flowers: Flowers are pedicillate, actinomorphic, pentamerous and complete'. Corolla consists of 5petals, red in colour and about 3 inches in diameter.

Fruit: The fruit (very rarely formed) is a capsule about 3 cm long.

Varieties: Many varieties exist differing in size and colour, in single (or) double forms. The important colors include Red, White, Yellow, and Light Red.⁶

Plant Part Constituent Reported

1.Flowers: Thiamine, Riboflavin, Niacin and Ascorbic acid, Apigenidin, citric acid, fructose, glucose, oxalic acid, pelargonidin, quercetin.

2.Leaves: Carbohydrates and/or glycosides, Steroids and/or triterpenes, Flavonoids, Tannins, Alkaloids and/or nitrogenous bases, Saponins, Coumarins

3.Stems: Teraxeryl acetate, β -sitosterol and the cyclicacids sterculic and malvalic acids.

4.Roots: Glycosides, tannins, phytosterols, fixed oils, fats, proteins, aminoacids, flavonoids, Saponins, gums and mucilage.⁷

Microscopic Characters:

Transverse section of midrib of leaf showed chained, small and numerous epidermal cells. The mesophyll layer is irregular and comprised of 6-7 layers. Cells of parenchyma varied greatly in shape and size and were sometimes, elongated or lobed. The xylem vessels were numerous, very big in size and circular in shape. Phloem vessels were small in size, numerous and circular in shape. Calcium oxalate crystals were dark stained and numerous in mesophyll parenchyma. Trichomes were absent on both upper and lower surface. Transverse section of lamina showed cuticle and thick walled cells in upper and lower epidermis. Epidermal cells were large in size, elongated and compact. Palisade parenchyma showed 3 or 4 layers of large, compact and dark cells. Dark stained crystals were present in mesophyll layer. The spongy mesophyll was wider comprising of 6-8 layers of lobed tightly interconnected cells. Trichomes were absent on both upper and lower surfaces. Vascular bundles had compact parallel rows of xylem vessels and fibres.

Physicochemical parameters:

The percent of loss on drying, total ash, acid insoluble ash, water soluble ash, pH of 1 % w/v solution of aqueous extract and swelling index has been shown in Table 1. A known quantity of dried leaf powder was extracted in a Soxhlet apparatus with petroleum ether (60-80°C), benzene, chloroform, ethyl acetate and methanol (95 %) and finally macerated with distilled water for 24 hours successively and the % of respective extractive values have been shown in Table.

Physicochemical parameters of leaves of *H. rosa-sinensis*⁸

S. No.	Parameters	Average Values
1	Total ash (%)	7.75
2	Acid-insoluble ash (%)	0.75
3	Water soluble ash (%)	6.32
4	Loss on drying (%)	4.93
Extractive value (%)		
1	Petroleum ether	1.45
2	Benzene	2.60
3	Chloroform	2.80
4	Ethyl acetate	3.20
5	Methanol	15.60
6	Distilled water	5.30

Traditional Medicinal Uses :

Sr. No.	Place	Parts	Activity
1	Bangladesh	Decoction of flowers	Regulation of menstrual cycle ⁹
2	China	Hot water extract of flowers and bark	Emmenagogue
3	East indies	Hot water extract of flowers	Regulation of menstrual, produce abortion ¹⁰
4	Cook Islands	Hot water extract of flowers & leaves	Ailing infants, Gonorrhea
5	Hawaii	Flowers	Lactation
6	India	Hot water extract of stems & flowers	Abortion, Ant-fertility, Contraceptive, Diuretic, Menorrhagia, bronchitis, Emmenagogue, Cough, Demulcent, Abortifacient ¹¹
7	Indonesia	Juice of leaves & flowers	Menstruation, Abortion, Emmenagogue, Women in labor
8	Japan	Decoction of leaves	Antidiarrheal ¹²
9	Kuwait	Flowers	Aphrodisiac
10	Malaysia	Hot water extract of roots & flowers	Fever, as Expectorant, Emmenagogue
11	Mexico	Infusion of Barks & leaves	Dysentery
12	Nepal	Hot water extract of roots	Cough
13	Peru	Hot Water extract of flowers	Contraceptive, Emmenagogue
14	Philippines	Hot water extract of flowers	Bronchial Catarrh, Emmolients,
15	Vietnam	Infusion of flowers	Dysmenorrhea, Abortive ¹³

Pharmacological Review

Hibiscus rosa sinensis (Malvaceae) is a perennial ornamental shrub available throughout India. Various parts of this plant like flowers, leaves and roots have been known to possess medicinal properties like oral contraceptive, laxative, aphrodisiac, menorrhagic etc. Several articles and ancient literature have shown that the flowers of this plant possess anti-fertility activity. The aqueous ethanolic extract of aerial parts of this plant was reported for its use in constipation and diarrhea. In traditional medicine the leaves of the plant are used in fatigue and skin disease. Powdered root of the plant is given for menorrhagia and the fresh root juice for gonorrhea. Flowers of the plant are used in diabetes, epilepsy, bronchial catarrh and leprosy. An infusion of the petal is widely used in Ayurvedic medicine in India as a demulcent refrigerant drink in fever and decoction is given in bronchial catarrh. Previous studies showed that the plant possess anti-phlogistic, anti-diarrheic and anti-complementary activity.¹⁴ Several articles and ancient literature have shown that the flowers of this plant possess antifertility activity, like anti-implantation, abortifacient, in rodents.

The aqueous-ethanolic extract of aerial parts of *H. rosa sinensis* were reported for its use in constipation and diarrhea. The alcoholic extract of flowers of *H. rosa sinensis* has been proved to possess anticonvulsant property. It has been reported that the plant flower possesses anti-spermatogenic and androgenic, anti-tumour and anti-convulsant activities. The use of flower to treat heart disorders has also been described, has demonstrated the anti-diabetic activity of *H. rosa sinensis* in diabetic rural population. A new flavonolbioside from the flowers of *Hibiscus vitifolius* Linn. was found to exhibit significant hypoglycemic activity in glucose induced hyperglycemic rats. Infusion of the petals is given as refrigerant and demulcent. Leaves are used as laxative while root is used in cough.

Conclusion

Hibiscus rosa sinensis possess many properties and this plant may procured at large scale for providing herbal alternative to many diseases. This study shows that on biochemical basis of plant used in the treatment and prevention of various diseases and disorders. The phytochemical screening on qualitative analysis shows that the plant is rich in alkaloids, terpenoids, flavonoids, glycosides, reducing sugar, Fatty materials, saponins, gums and mucilage.

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