A Review Article on Pharmacological Activities, And Therapeutic Potential of -“Hibiscus Rosa Sinensis”

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ABSTRACT – Hibiscus Rosa sinensis is genus of flowering plant, generally known as, China rose belonging to the malvaceae family. This plant has various important medicinal uses. “world health organisation” has recommended that traditional health and folk medicine systems has proved to be more effective health problems worldwide. Hibiscus rosa sinensis Linn is certain to emerge in the near future as major player in the growing field of herbal health supplements and medicines both in daily self care and in professionally managed health care system. It is a bushy, evergreen shrub or small tree growing 2.5-3m (18-16ft) tall and 1.5-3m (5-10ft) width with glossy leaves and solitary, brilliant red flowers in summer and autumn. All the parts of hibiscus Rosa sinensis Linn and chemical constituents are used as antitumor, antifertility, antiovulatory, antiimplantation, antiestrogenic, antipyretic, antiinflammatory, analgesic, antiviral, antifungal, antispasmodic, antibacterial activity.

KEYWORD:- Hibiscus rosa sinensis Linn ,Traditional medicine,antifertility.

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I. INTRODUCTION:

It is believed that species had been given the name ‘‘rosa sinensis which means rose of china ’’ in latin, by the famous swedish biologist, caroles linnaeus in the early 1750s [5]. china rose or “queen of tropics” is often a popular name for the gorgeous flowering plant hibiscus rosa sinensis , as it is mainly found in south – east China and some islands in the pacific and indian ocean. hibiscus is hawaii’s admired national plant and it is often seen worn in hair for cultural occations [1,2]. This plant belongs to the sub-kingdom magneliophyta and to the class magnoliosida meaning that it is vascular plant that produces seeds .It belongs to the family malvaceae ,and it is one of the 300 species of the genus hibiscus,[1] In addition, the juice extracted from the leaves and flowers has been used since a long time ago as natural remedy for some diseases and painful symptoms ,as well as in herbal cosmetics as wilted [3,4]. Dark flower extract is used to make eye liners, and in shoe-blaking [4].

For the medicinal purposes more than 30% of total species are used. More than 80,000 medicinal plant are used out of 2,50,000 higher plants.Traditionally, hibiscus flowers have been reported to posses antitumor properties, as well as have been used as analgesic, antipyretic, antiasthetic and antiinflammatory, agents. [6]

For health purposes More than three quarter of the whole world population depend on plants[7].Leaves,stems,bark, roots,flowers,are the different organ of the plant from which the drug is obtained. As a binder they show adhesive qualities to powder [8]. Gum, resin, and latex are also excretory products of plants from which the drug is prepared [9]. Hibiscus rosa sinensis musilage is also used as disintegrates and super disintegrates in the pharmaceutical preparation. The tablet are breakdown into small granules and granules further disintegrates into small pieces in the solution by adding disintegrate either intragranulary or extragranulary [10][37]

DISTRIBUTION :- It is native of China .it is grown as an ornamental plant in garden through out india and often planted as hedge or fence plant [11].

VERNACULAR NAMES:-[12]

English - Shoe flower plant ,china rose,Hibiscus.
Hindi - Gurhal,Odhul,Arahul,Jasut,Jasume,Java.
Telangana - Dasanamu, dasana ,
A Review Article On Pharmacological Activities , And Therapeutic Potential Of " Hibiscus ..

<table>
<thead>
<tr>
<th>Sanskrit</th>
<th>Japa, Jawa,Rudrapushpa,Aundrapushpa,</th>
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<tr>
<td>Bengali</td>
<td>Joba , Jiva , Oru.</td>
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<td>Malayali</td>
<td>Himbarathi, Ayumprathi, Chebarthi .</td>
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<td>Punjabi</td>
<td>jasum , Jaipuspa, Gurahal.</td>
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<td>Tamil</td>
<td>Saputtum , Semparutti .</td>
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**TAXONOMY:** - [12]

<table>
<thead>
<tr>
<th>Name</th>
<th>Hisbiscus rosa sinensis Linn</th>
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<tbody>
<tr>
<td>Super division</td>
<td>Spermatophyta-seed plants</td>
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<tr>
<td>Division</td>
<td>Magnoliophyta flowering plants</td>
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<tr>
<td>class</td>
<td>Magnoliopsida-Dicotyledons</td>
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<tr>
<td>Subclass</td>
<td>Dillenidae</td>
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<tr>
<td>Order</td>
<td>Malvales</td>
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<tr>
<td>Family</td>
<td>Malvaceae-Mallow family</td>
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<tr>
<td>Genus</td>
<td>Hibiscus L-Rosemallow</td>
</tr>
<tr>
<td>Species</td>
<td>Hibiscus rosa sinensis L-shoebblackplant</td>
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**Traditional uses** : In India ,hibiscus flowers and leaves are used for abortion antifertility ,contraceptiv , dieuratic,mennorrhagia,bronchitis,emmengogue,deumulcent,cough,[13].In africa and neighbouring tropical countries have lengthy history, hibiscus has been used to treat constipation[14] . the fleshy and red calyx is used in the preparation of jam, jellies, cold and warm drinks.In Egypt , the plant used for the treatment of cardic and nerve disease and has been discribes as diuretic .In Japan Hibiscus leaves are used as antidiarheal . In Iran , sour tea used for the treatment of hypertention.In western countries ,hibiscus flowers are often found as component of herbal Tea mixture .In thiland ,peoples consume rossele juice to quench thirst[ 12],[37]

**Phytochemistry** : Each part of h. rosa sinensis contains a vide range of compounds . It was reported that phlobatenins ,terpenoids including other compounds such as thiamine riboflavin ,and neocin are present in leaves ,flowers stem and roots.[15]

The leaves contains [7.34mg/100mg of fresh material ]srivastav ,bhatt and uduva have been identified fatty alcohols ,hydrocarbons, of hibiscus rosa sinensis leaves undecanoic acid pentadecanoic acid ,ticosanoic acid.octadecadioic acid octacasan -1-oil, n- ti cosane, tri acontane ntriacontane -1-oil ,n-pentacosane ,nonanoic acid ,nonadecanoic acid,N-octadecane,N-octacosane,N-heptadecane,N-heneicosane N-eicosane,N-dotricontae, etc .[18].Pattanaic have been reported petals and,contain catalase.[19]

Analisis of the edible part of flowers [61.6 %]gave the following valuess moisture 89.8,nitrogen 0.064,fat 0.36, crude fiber 1.56% calcium 4.04%,phosphorous 26.68%, iron 1.69mg/100mg.[16]

Flavones from flowers ,quercetine,-3,5diglucocide,quercetine-3,7-dichluiside, cynidine-3,5dglucocide,cinidine -3-sophorocide 3-5-diglucocide from deep yellow flowers, all above compounds are isolated from deep yellow flowers[17].

The flowers also contains thiamine [0.031mg %], riboflavin [0.048mg%],niacin [0.61mg%]and ascorbic acid [4.16mg%].apigenidine,citric acid fructose,glucose,oxalic acid,palargodine, quarcetine.

Leaves and stems give teraxeril acetate , β-sitosterol and the cyclic acid sterculic and the malvelic acid[18],[39]
A Review Article On Pharmacological Activities, And Therapeutic Potential Of "Hibiscus ..

QUERCETINE

β CYTOSTEROL

CYANIDINE-3,5-DIGLUCOSIDE

CYANIDINE-3,5-DISOPHOROSIDE

HIBISCUS ROSA SINENSIS PLANT AND FLOWERS

PHARMACOLOGICAL ACTIVITIES OF HIBISCUS ROSA SINENSIS
**ANTIBACTERIAL ACTIVITY**: Ruben P gaja lakshmi k discussed about the antibacterial activity of *hibiscus rosa sinensis* flower extract. In this study, the flower extract of hibiscus works against human pathogens. From the disc and agar diffusion method they evaluated the antibacterial activity. In the result, cold extraction illustrate a maximum zone of inhibition against e. coli, Bacillus subtilis and hot extraction against Escherichia coli, salmonella sp. It was concluded that extract of *hibiscus rosa sinensis* have significant effect as antibacterial activity.[20] [38]

**ANTIFERTILITY ACTIVITY**: David hoffman discussed over the fertility and contraception by using the hibiscus rosa sinensis extract. Only flower show the anti fertility activity. The antifertility action depends upon the season. During winter antifertility action is maximum and minimum in summer.[31] The benzene extract of hibiscus rosa sinensis shows antifertility effect in rats.[21] The ethenol extract showed an effect on sex ratio in favor of male pups at birth.[21] Flower collected in winter season showed maximum post-coital antifertility activity.[22]

[23] Ethenol [95%] extract of dried flowers, taken orally by human females at dose of 750.0mg/person, was active. The dose was divided and taken 3 times daily from the 7th to the 22nd day of the menstrual cycle.[21] Twenty women were in the test group. Seven of the women discontinued treatment due to non-associated illness. No pregnancies have developed in 14 women after up to 20 months.[24]

**ANTIOXIDANT ACTIVITY**: Rajesh mandate, S.A. Sreenivas et al reported that the crude extract of *hibiscus Rosa sinensis* showed antioxidant activity. The name of some antioxidant radical scavenger compound which are used as references are butylated hydroxytoluene and tocoferol. In Linoleic acid emulsion, 94.58% oxidants such as BHA, BHT, and tocoferol restricts at particular concentration of 60 µm/ml. Natural antioxidants are obtained from the crude extract of *hibiscus rosa sinensis* and shows the effective result.[25] Any substance which have the ability to remove these such as H. rosa sinensis phytochemical, will protect the cell system and component from cytotoxic damage.[32][39]

**ANTI-INFLAMMATORY ACTIVITY**: Ethenol extract of dried leaves administered intraperitoneally to rats at a dose of 100.0mg/kg, was active careagenin-induced pedal edema.[26] Vivek tomer et al explains the antiinflammatory activity of *hibiscus rosa sinensis*. So many inflammatory conditions such as inflammation of blenorrhoea, asthmatic bronchitis and oral mucosa is trated by *hibiscus rosa sinensis*. For antiinflammatory activities, the methanolic extract of *hibiscus rosa sinensis* leaves were used. Indomethacin is used as standered agains caarragen and dextran induces inflammation.[27]

**ABORTIFICATION ACTIVITY**: Water insoluble and ether soluble fractions of a total benzene extract of dried flower, administered by gastric intubation to rats at a dose of 186.0mg/kg were active.[28] Ether soluble and water insoluble fraction of total Benzene extract at a dose of 73.0 mg/kg are active[29].

**ANALGESIC ACTIVITY**: Ethenol [70%] extract of dried leaves, administered orally to mice at a dose of 125.0mg/kg, is active in inhibition of acenoton-induced writhing[26].

**ANTIESTROGENIC ACTIVITY**: Studies with the total benzene extract of *hibiscus rosa sinensis* flowers revealed antiestrogenic activity in bilaterally ovariectomised immature albino rats. It disrupt the astrous cycle in rats, depending on the dose and duration of the treatment. The extract lead to a reduction in weight of the ovary, uterus and pitutery. Overyies showed follicular atresia and uterine atrophic changes these extract reversed 30 days after withdrawal of the plant extract.[30]

In guinea pigs, the benzene ethenolic extract of the flowers produced an increase in the ovary weight as well as in the weight and diameter of the corpora luta, indicating an antiestrogenic activity. Benzine extract of the flowers administered orally to ovariectomised rats at dose of 50.0, 100.0, 150.0, 200.0 and 250.0mg/kg were active.[28] Ethenol [95%] extract of the flower, administered orally to ovariectomised rats, was inactive at adose 100.0mg/kg and active at doses of 150.0, 200.0 and significantly decreases overine, uterine and pitutary weight.[31][32]

**ANTI-IMPLANTATION ACTIVITY**: *Hibiscus rosa sinensis* has been investigated extensively for its antifertility effects. Different part of the plant have been screened for their effect on the reproductive system. The benzen extract of hibiscus flowers [100mg/kg] revealed post coital antifertility effect in female albino rats, leading to 80% reduction in the implantation site on the 10th Day of pregnancy. The fetal in rats was within the normal range indicating the absence of any abortifient effect in the benzene extract.[31]

**THERAPEUTIC EVALUATION**: An uncontrolled therapeutic clinical trial using the ethanolic extract of hibiscus Rosa sinensis flowers was carried out on 21 women in the productive age group by administering...
A Review Article On Pharmacological Activities, And Therapeutic Potential Of - “ Hibiscus ..

750mg/day in three divided dose from the 7th to 22nd day of menstrual cycle (total of 229 cycle). 14 women did not have pregnancy for 4 years, whereas 7 women dropped out of the trial [40]. In another uncontrolled clinical study on 20 patient of mild to moderate hypertension, powered japa flowers 6 to 9gm per day in the blood pressure , the effect on the diastolic pressure being more marked than on systolic[30]. Clinical trials were conducted with vedangadi yoga (a herbal preparation containing Embelia ribs seeds . Hibiscus rosa sinensis flowers and ferula fetida olio-gum resin) for its antifertility activity. The drug was found to be quite effective with no toxic effect [33].

ANTI PYRATIC ACTIVITY: The antipyratic effect of 250 mg/kg h. rosa sinensis aqueous root extract was investigated using yeast –induced pyrixiya in albino swiss rats. After 3 hours and a half, the extract reduced the rectal temperature from 39.0 to 37.0 °C whereas treatment with 30 mg/kg b.w. paracetamol as positive control maintained it as 37 °C [30]. The extract analgesic potential were also examined at the same dosage using tail flicking test . treatment increased reaction time as compared to 45 mg/kg b.w. dicylofenac sodium treated and controled groups, meaning that it weakened pain response [31]. Similarly, 500 mg/kg b.w. aqueous leaf extract managed to lower mice rectal temperature by 1.55°C 5 hours after extract consumption , compared to 2.00°C using 10mg/kg b.w. acetaminofene as positive control[34].

HAIR GROWTH ACTIVITY: Petroleum ether extract of leaves and flowers of hibiscus rosa sinensis was evaluated for its potential on hair growth by in vivo and in vitro method. The leaf extract when compared to flower extract exhibit more potency on hair growth. [35]

ANTI CANCER ACTIVITY: Oral cancer cell lines KB were treated with 75µg g and 125 of h. rosa sinensis oil extract for 24 hours. After subjecting the treated cells to be DNA fragmentation assay, and using agarose gel electrophorisis, it was observed that the cells DNA from the both concentration has been fragmented compared to contro sample. This means that hibiscus extract hindered the growth and piliferation of oral cancer cell. [36]

II. CONCLUSION:

Hibiscus rosa sinensis, which belongs to malvaceae family has been widely used as a tradition remedial plant in most of the countries and specially in tropical countries. All of its parts have been used as in the treatment of fever inflammation, bacterial infection and even as contraceptive. Majority of the population use the drugs derived from the plant for their health care directly or indirectly. The antioxidant properties of the hibiscus rosa sinensis plant are of particular interest in view of the oxidative modification. The hibiscus plant has been identified for their various therapeutic applications but the more research is needed for the future prospective. With time, we can expect to more scientific evidence supporting the benefits of Hibiscus rosa sinensis in the overall maintenance of health and protection from disease.

REFERENCES:

A Review Article On Pharmacological Activities, And Therapeutic Potential Of " Hibiscus .."