

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

Anuj singh kushwaha*² and Dr. Vandna Pathak¹

¹Associate professor, Faculty of science and Environment, Mahatma Gandhi Chitrakoot Gramodaya University, Chitrakoot Satna (m.p.) India.

²M.sc.IC IV SEM. Faculty of science and Environment, Mahatma Gandhi Chitrakoot Gramodaya University, Chitrakoot Satna (m.p.) India.

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-m (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, antiovaratory, antiimplantation, antiestrogenic, antipyretic, antiinflammatory, analgesic, antiviral, antifungal, antispasmodic, antibacterial activity.

KEYWORD:- *Hibiscus rosa sinensis* linn, Traditional medicine, antifertility.

Date of Submission: 28-07-2021

Date of acceptance: 12-08-2021

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 occasions [1,2]. This plant belongs to the sub-kingdom magnoliophyta and to the class magnoliopsida 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 longtime 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 possess 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 intragranularly or extragranularly [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]

Telangana - Dasanam, dasana,
English - Shoe flower plant, china rose, Hibiscus.
Hindi - Gurhal, Odhul, Arahul, Jasut, Jasume, Java.

Sanskrit - Japa, Jawa,Rudrapushpa,Aundrapushpa,
 Bengali - Joba , Jiva , Oru.
 Malyali - Himbarathi, Ayumprathi, Chebarthi .
 Punjabi - jasum , Jaipuspa, Gurahal.
 Tamil - Saputtum , Semparutti .

TAXONOMY: - [12]

Name	Hibiscus rosa sinensis Linn
Super division	Spermatophyta-seed plants
Division	Magnoliophyta flowering plants
class	Magnoliopsida-Dicotyledons
Subclass	Dillenidae
Order	Malvales
Family	Malvaceae-Mallow family
Genus	Hibiscus L-Rosemallow
Species	Hibiscus rosa sinensis L-shoeblackplant

Traditional uses : In India ,hibiscus flowers and leaves are used for abortion antifertility ,contraceptiv , dieuratic,mennorrhagia,bronchitis,emmengogue,demulcent,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 cardiac and nerve disease and has been discribes as diuretic .In Japan Hibiscus leaves are used as antidiarrheal . 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 juce 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 ,octadecadianoic acid octacasanoic acid ,octacasan -1-ol, n- ti cosane, tri acontane ntriacontane -1-ol ,n-pentacosane ,nonoanoic acid ,nonadecanoic acid,N-octadecane,N-octacosane,N-heptadecane,N-heneicosane N-eicosane,N-dotricontae, etc .[18]

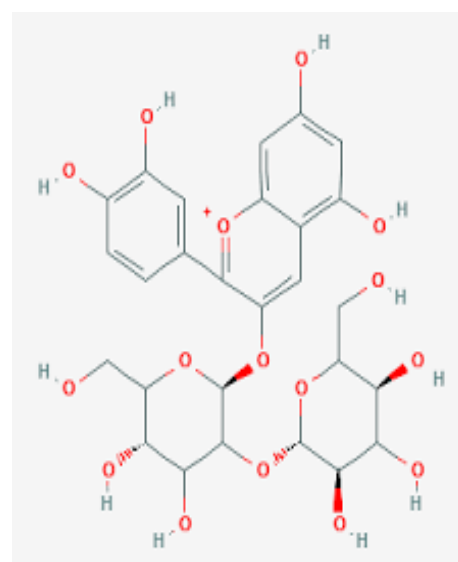
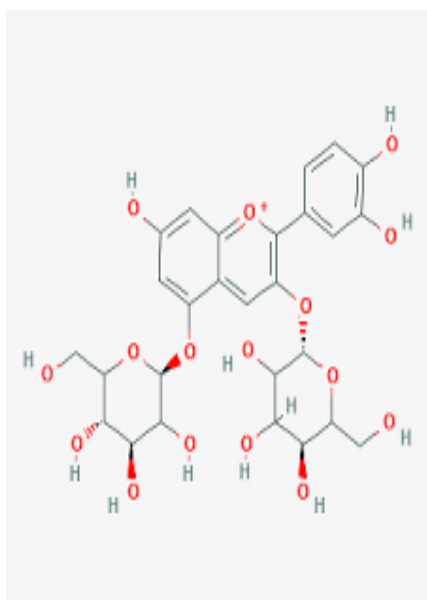
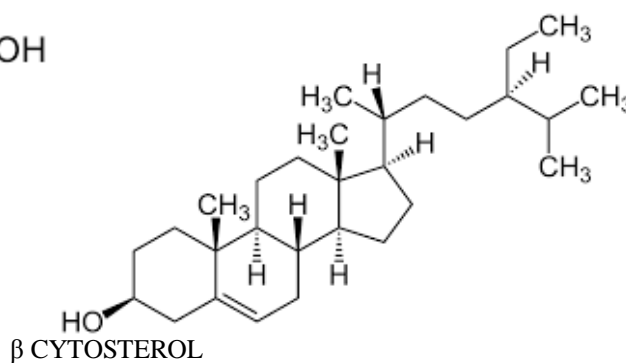
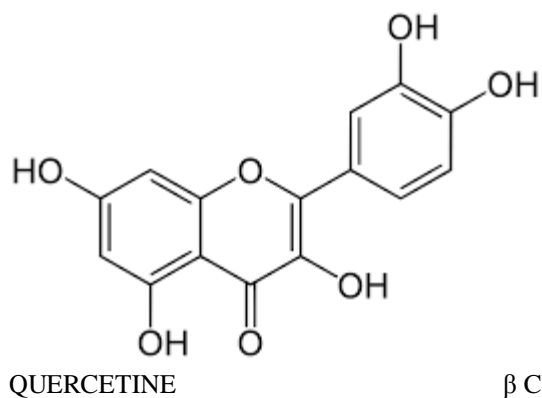
Pattanaic have been reported petals and,contain catalase.[19]

Analisis of the edible part of flowers [61.6%]gave the following vallues 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-dicluside, cynidine-3,5diglucocide,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]



**HIBISCUS ROSA SINENSIS PLANT AND FLOWERS
PHARMACOLOGICAL ACTIVITIES OF HIBISCUS ROSA SINENSIS**

ANTIBACTERIAL ACTIVITY : Ruban 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 humen 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 exrtact of *hibicus rosa sinesis* 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 upan 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 retio 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 humen 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 manstrule cycle .21 women was in the test group .seven of the women discontinued treatment due to non –assosiated 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 emulsun ,94.58% oxidants such as BHA,BHT, and tocoferol restricts at particular concentration of 60 µm/ml .Natural antioxidants are obtained from the the crude extract of *hibiscus rosa sinensis* and shows the effectiv 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 intraperitonially to rats at a dose of 100.0mg/kg ,was active carregenin –induced pedal edema [26]. Vivek tomer et al explains the anti inflammatory activity of *hibiscus rosa sinensis* . So many inflammatory conditions such as inflammation of blenorhorea,asthmatic bronchitis and oaral 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 benzen 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 inhibision of aconotin –induced writhing [26].

ANTIESTROGENIC ACTIVITY: Studies with the total benzene extract of *hibiscus rosa sinensis* Flowers revealed antiestrogenic activity in bilaterally overiactomised 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 .Overies showed follicular atresia and uterine atrofic changes these extract reversed 30 days after withdrawal of the plant extract .[30]

In gunia pigs , the benzene ethenolic extract of the flowers produced an increase in the overine weight ,as well as in the weight and diameter of the corpora luta ,indicating an antiestrogenic activity.

Benzine extractof the flowers administered orally to,overactomised 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 averactomised rats , was inactive at adose 100.mg /kg and active at doses of 150.0, 200.0 and significantly deceases 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 haave 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 implantaion site on the 10thDay of pregnancy .the fetal in rats was within the normal range ,indicating the absence of any abortifient effect in the benzene extract. [31]

THERAPUTIC EVALUTION : An uncontrolled theraputic clinical trial using the ethanolic extract of hibiscus Rosa sinensis flowers was carried out on 21 women in the productive age group by administering

750mg/day in three divided dose from the 7th to 22nd day of menstrual cycle (total of 29 cycle) .14 woman 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 oilo-gum resin) for its antifertility activity . The drug was found to be quite effective with no toxic effect .[33]

ANTI PYRATIC ACTIVITY : The antipyretic effect of 250 mg/kg h. rosa sinensis aqueous root extract was investigated ,using yeast –induced pyrexia 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.diclofenac sodium treated and control groups ,meaning that it weakened pain response [31] . Similarly ,500 mg/kg b.w of 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. acetaminofone 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 75µ 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 electrophoresis ,it was observed that the cells DNA from the both concentration has been fragmented compared to control sample . This means that hibiscus extract hindered the growth and proliferation of oral cancer cell . [36]

II. CONCLUSION :

Hibiscus rosa sinensis , which belongs to malvaceae family has been widely used as a traditional 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:

- [1]. Bragiliya L ,bruna s,Lnteri S, Mercuri A,portis E. An AFLP –based assesment of genetic diversity within hibiscus rosa sinensis and its place within the hibiscus genus complex . scientia horticulturae . 2010;123(3) ;372-378.
- [2]. Melzer MJ ,Smbajon N, Carillo J, Borth WB, Freits- Astus J Kitajima EW, et al . A cilevirus infect ornamental hibiscus in haawai . Archives of virology . 2011;158 (11):2421-2424.
- [3]. Reddy UK , Rajesh S ,Sindhu G ,Arun B. /herns use in formulating poly herbal hair oil – a review . Indo American journal of Pharmaceutical Research .2017,4 (4): 1527-1539.
- [4]. Kumari OS, Rao NB ,Reddy Vk.Phyto-chemical analysis and antimicrobial activity of hibiscus rosa sinensis . World Journal of pharmercy and Pharmaceutical Science .2015;4(5):766-771.
- [5]. GomareKS, Mishra DN. FTIR pectroscopic analysis of phytochemical extract from hibiscus rosa sinensis L . used for hair disorder .International Journal of recent trends in science and technology .2018:7075.
- [6]. Vastered JV, Byadgi SA. Phytochemical screening and antibacterial activity of hibiscus rosa sinensis leaf extract .International Journal of Current Microbiology and Applied science .2018;(2):260-270.
- [7]. Sargam ,DharmendraKumar ,Garima Garg : Pharmaceutical and Pharmacological Activities of *hibiscus rosa sinensis* mucilage .The global Journal of pharmaceutical Research .2(3),pp 1822-29 ,oct ,2013
- [8]. Grhipunge Kumarn arul ,Pals Ranj,Maski Nitin and Thirumoorthy N:A Novel binding agent for pharmaceuticals formulation from cassia rucsburchai seeds .international journal of pharmercy and pharmaceutical sciences ;1(1) .
- [9]. Joy PP,Thomas J, Mathew S,Sarika :Medicinal plant .tropical horticulture 2006;2:449-632.
- [10]. Mohnachandran PS, Sindhumol PG, Kiran TS: Superdisintegrants :an overview.Internation Journal of science review and research 20011; 6 (1):105 .
- [11]. Sharma PC,Yelne ,B.,and Denn's,T.J. Data base on Medicinal plants used in Ayurvveda ,Central council for research in ayurveda and siddha ,Vol-2 ,New Delhi ,2001 , 198-199 .
- [12]. Vinceta Khristi and V.H. Patel. Therapeutic potential of hibiscus Rosa sinensis : A Review ;International Journal of Nutrition and dietetics ;volume 4,2016 Pages 105-123
- [13]. V. M.Jadhav,R.M.Thorat ,V.j. Kadam and N.S.Saathe, Traditional medicinal uses of Hibiscus rosa sinensis ,J.pharma . Res. 2(8) (2009) 1220-1222.
- [14]. K.R. Krtikar, and B.D. Basu ,Indian Medicinal plants ,International Book Distributers ,Dehradune ,India ,1999,p.335

- [15]. Salem MZ, Olivarese-perez j, Salem AZM.Studied on biological activities and phytochemicals composition of Hibiscus species – review. Life science .2014;11(5):1-8.
- [16]. The Wealth of India –Raw materials ,Vol -5,Council of scientific and Industrial Research ,New delhi ,1992 ,91-92.
- [17]. Joshi ,s.g., medicinal plant,Oxford and IBH Publishing Co. Pvt. Ltd.New Delhi ;2004,255.
- [18]. Khare,C.P.Encyclopedia of india Medicinal plant s, Sringervella berlin Heidelberg,New york ,2004 248-249.
- [19]. Srivastav ,D.N., Bhatt,S.K. and Udupa,K.N.gas chromatographic identificationof , Fatty alcoholsl and hydrocarbon of hibiscus rosa sinensis leaves J Amer.Oil chem soc.53:1976,607.
- [20]. P.Ruban Gajalaxmi : In-Vitro antibacterial activity of hibiscus rosa sinensis flower extract again human pathogens .Asian pacific journal of tropical biomedicins 2010;1-5.
- [21]. Batta S.K.and santha kumari,G.The antifertility effect of ocimum sanctum and hibiscus rosa sinensis ,Indian J. Med .Res ;59:1970,77-78.
- [22]. Kholkhute ,S.D.Mudgal .V.and Udupa K.N.studied the antifertility potentiality ,of hibiscus rosa sinensis .Parts of medicine value Selection of medicine value ,selection of species and seasonal variations,planta Med ;31:1977,39-37.
- [23]. Tiwari P.V.,preliminary clinical trial on flowers onf hibiscus rosa sinensis and as an oral contraceptive agent ,J. Res .Indian madeyoga homyopathi ;9 [4]:1974,96-98.
- [24]. M sakaran and A.Vadivel,antioxidant and antidiabetic effect of hibiscus rosa sinensis flowers extract on streptozotocin induced experimental Rats –a dose response study, notulae scientia Biologica 3(4) 2001,13.
- [25]. Mandede rajesh ,Sreenivas S.A. ,Sakarkar D. M. and chaudhary avijit: radical scavenging and antioxidant activity of hibiscus activity hibiscus rosa sinensis extract .African journal of pharmacy and pharmacology 2011;(17),2027-2034.
- [26]. Singh N.R. Nath ,A.K.and Agrawal.R.P.A pharmacological invevstigation of some indigenous drugs of plants origin for evaluation of their antipyretic, analgesic anti inflammatory activities J.Res.Indian Med.Yoga Homeopathy ;13: 1978, 58-62.
- [27]. Tomar vivec Kannaujia P,jain .K.N.Dube K.s.:Antinoceptive and antiinflammatory activity of leves of hibiscus rosa sinensis .International Journal of research in ayurveda and Pharmacy.
- [28]. Singh M.P.,Singh R.H. and uddupi ,K.N. ,antifertility activity of abenzene extract of hibiscus rosa sinensis flower in female albino rats ,Planta med ;441982,171-174 .
- [29]. Ross,I.A.Medicinal plant of the words 2nd edition vol. no. 1stLibrary of congress Cataloging in publication data ,Amerika , 253-266 .
- [30]. V.M.Jadhav ,R.M. Thorat, V.J.Kadam,and N.S.Sathe :Hibiscus rosa sinensis Linn – “Rudrapusa”: A Review . V.M. Jadhv at all/ Journal of pharmacy research 2009,2(7) ,1168-1173.
- [31]. Kholkute S.D. and udupa ,K.N.antiestrogenic activity of rosa sinensis flowers,. Indian j exp. Biology ;14:1976;175-167.
- [32]. Kholkute S.D.,Chatterji ,S.and udupa K. N., effect of hibiscus rosa sinensis linn on Oestrues cycle and reproductive in rats ,Indian J expr.Bio.14:1976,703-704 .
- [33]. Sharma P.c.Yeln M.B. and dens’s T. J . database on Medicinal plant used in Ayurveda central councils for reseach in ayurveda and Sidhana Vol. -2 new Delhi 2001 199-201.
- [34]. Sawarkar A.R. ,Jangade C .R. Thakre P.D. Sonkusale P.M. Jumde Pratibha antipyretic activity of hibiscus rosa sinensis linn in Rats .Indian Journal Of Fields veterenians 2011;6(4) :49-51.
- [35]. Adhiranjan ,N, Kumar ,T.R. Shanmugasundaram ,N.,Babu ,M.,In Vivo and vitro evaluation of hair growth potentials of hibiscus rosa sinensis Linn ,Journal ethnopharmacology ;88:2003,235-239.
- [36]. Hinaz MJ ,Fayathri r,Priya VV,G enotoxicity of hibiscus rosa sinensis on oral cancer cell line .International journal of Pharmaceuticals science Review and research .2017 ;44(4):21-23.
- [37]. Sana Wahid ,Samiyah Taslim,and Sajid jahangir ;Phytochemical properties of ethenolic flower extract of *hibiscus rosa sinesins* and evaluation of its antioxidant potential :World journal of phermacrutical research : volume 8, Issue 161-168.
- [38]. P Ruban and K Gajalakshmi ;In vitro antibacterial activity of hibiscus rosa sinensis flower extract against human pathogens :asian pacific journal of tropical biomedicine; 2012 may 2(5): 399-403.
- [39]. M P Prasad,In vitro Phytochemical analysis and antioxidant activities of hibiscus species , Int ,J.Pure appl.bioscience 2(3)(2014),83-88.
- [40]. O. A. Ojiako ,P. C. Chikezie and A. C. Ogbuzi ,Blood glucose level and and lipid profile of alloxan-induced hyper glycemcic rate treated with single and combineterial herbal formulation journal of tredition and complementary medicine .