International Journal of Applied Ayurved Research ISSN: 2347- 6362

PASHANBHEDA: A VALUABLE MEDICINAL PLANT

[1]G. S. Indoriya, [2]Sharma Ashwini Kumar, [3]Tanwar Pankaj

1. Principal, Pt.M.M.M.Government Ayurved College,Udaipur Rajasthan.
2. Associate professor, (P.G.Department Dravya Guna) Pt.M.M.M.Government Ayurved College,Udaipur Rajasthan.
3. P.G. Scholar Pt.M.M.M.Government Ayurved College,Udaipur Rajasthan.

ABSTRACT :

The word Pashanbheda is made of two words first is Pashan means a stone and second is Bheda means to break. Means one which breaks the stones. Stones means renal and bladder stones or ordinary stones disintegration of the calculi in the bladder and kidney. There are so many plants that are used by this name like *Saxifraga ligulata, Aerva lanata,Aerva javanica, Homonia riparia* etc. due to their diuretic and lithotriptic activites . One of such plant that is widely accepted under the name of *Pashanbheda Bergenia ligulata Syn. Saxifraga ligulata*. The rhizomes of this plant are used to prevent and expel urinary stones.

Key words: *Bergenia ciliate*, distintegration, urinary bladder, *pattharachoora*, Renal stone.

INTRODUCTION: *PASHANBHEDA (Bergenia ciliata)* grows up by breaking stones and its very interesting that it also used for removal of renal stones by breaking them. It synonymously called velvat leaf. It also known by the common names *pattharaachata , pattharachoora, silphora* etc. *pashanbheda* has a special place in Ayurveda as it is a main drug for stone of kidney and urinary bladder. It is an evergreen plant the concentration of alkaloids remain good in winter season. The native place of ciliate Central Asia. It is mostly found in Himalayas region and Khasia hills of Meghalaya. It can survive even extreme condition even in stones without soil. It is wonderful that leaves produces new plants that come contact with an suitable climate. It is a small perennial herb with red coloured flower. The leaves of this plant resemble very much banyan tree. The pieces of root of this plant are sold as *pashanbheda* in Gujarat and North India market. It grows in the temperate Himalayas from Kashmir to Bhutan between7500 to 10000 ft. and Khasia hills. [2,3,4,7]

Ayurvedic properties and Pharamacological action: According to ayurveda literature *Pasanbheda* is kasaya (Astringent) and *Tikta (bitter*) in rasa, *Laghu* (light) and *Snigdha* (smooth) in *guna* (properties) sita (cold) in virya (potency) and *katu (*Pungent) in vipaka (metabolism) . Due to these properties, it pacifies *tridosha Vat , Pitta and Kapha.* It has *mutra virechaniya* (diuretic) *karm* (action) .

Local/Vernacular Names: *Patharachat, Asmabhedaka, Silibheda, Patharakuchi, Himsagara, Patrankur, Pakhanbheda, Silpbheda, ,Hiitoaga, Pasanberu,Hittulaka.*

Hindi – *Dakachru, Pakhanbhed, Patharcua, Silpbheda.*

Assamese – *Patharkuchi*

Bengali – *Himasagara, Patharchuri, Patrankur.*

Gujrati - *Pakhanbhed, Pashanbheda.*

Kashmiri - *Pashanbheda.*
Kannad – *Alepgaya, Hittaga, Hittulaka, Pahanbhedi , Pasanberu.*
Malayalam – *Kallurvanchi, Kallurvanni, Kallorvanchi.*
Marathi - *Pashanbheda.*
Mizoram – *Khamdamdawi, Pandamdawi.*
Oriya – *Pashanbhed*i.
Punjabi – *Batipa, Dharposh, Kachalu.*
Tamil – *Sirupilai.*
Telugu – *Kondapindi, Telanurupindi.*
Urdu – *Krchalu, pakhanbheda.*
Synonyms –
Asmaghana, Upalabhedaka, Sailodbheda. [1]

Species of pasanbheda uses in different parts of India-(1)

S.N.	BOTANICAL NAME	FAMILY	LOCAL NAME & PLACE WHERE USED	Useful part
1	*Aerva lanata Juss.*	*Amaranthaceae*	Sirupeeli or sirupoolai (Tamil), Cherubula (Malayalam), Pindiconda (Telugu),Rajasthan	Whole plant but the siddha physicians used only roots.
2.	*Aerva javanica Juss.*	*Amaranthaceae*	Gorakha-Ganjo (Gujarat)	
3.	*Ammania bacifera Linn.*	*Lythraceae*	Kerala , Agiyo (Gujarat) , Kalluruvi (Tamil, Malayalam and Kannada) , Neermale neruppu (Tamil), Agni – vednapaku (Telugu)	
4.	*Rityka aquatic Lour*	*Ehretiaceae or Boraginaceae*	Mysore	
5.	*Bergenia ligulata(wall)or Saxifraga ligulata*	saxifragaceae	Patharaachura (Kashmir) Kashmir to Bhutan , Khasia hills. (root pieces of this plant are sold as Pashanbheda in Gujarat and north India.	Used special for lythophytic action.
6.	*Coleus aromaticus*	*Labiatae*	Bengal	Useful part is root
7	*Bryophyllum calicynum Salisb. Or Kalanchoe pinnata*	*Crassulaceae*	Bengal	Zakhme Hayat in Unani means leaves juice is best styptic, stops bleeding and cures the

				wound.
8.	*Bridelia Montana*	*Euphorbiaceae*	Also called Fater –food (stone crusher) in Goa	
9.	*Homania riporia Lour*	*Euphorbiacea*e		
10.	*Ocimum basillicum*	*Labiatae*		

Pharamacological action of pasanbheda is *Mutrakrcch hara* , *Asmarihara* (remove renal stone), *Prameh hara* (anti diabetic) , *yonirog hara* (effective in vaginal diseases), *Plihodara (*effective in spleen disorders) , *Hridrog hara* (effective in cardiac disorders) and *Gulm***.** [1,2,7]

Classical references – [5, 6, 7]

Acharaya Charaak has cauterized it in *Mutra virechaniya Mahakasaya*.

Acharaya Susruta and Vagabhatta include it in *Virtarvadi Gan.*

Useful part – Root

Dosage – powder – 3 to 6 gm. , Decoction – 50 -100 ml.

Important formulation – *Pasanbhedadi ghrat* , *Pasanbhedadi churna* , *Pasanbhedadi kavtha(Decoction)*

Chemical constituents:

1- Berganin alias cuscutin is trihydroxybenzonic acid glycoside. It possesses o- demethylated derivative , so called nor bergenin . it has some extraordinary effects in boosting immunity.

2- B – sitosterol is plant sterols. It is an analgesic component. It increases the pain tolerance by 300 percent . it is structurally similar to cholesterol . they are hydrophobic and alcohol soluble.

3- B – sitosterol –D- glucoside is basically having some analgesic effect . we can increase pain tolerance 157 percent by use of it .

4- Leucocyanidin is used for the treatment of many diseases. It has antiseptic, anti convulsant, anesthetics and anti asthmatic property.

5- Gallic acid- It is a type of phenolic acid or a type of organic acid . It is also known as gallates . It is found in many plants .Mainly it is used in ink industry and pharma industry .

6- Methyl gallate – it is well known anti oxidant. It reduces the aging process.

7- Catechin – it is a chemical that effects on the B M I . it is beneficial in obesity and reduces extra fat. Usually it reduces subcutaneous fat .

8- Mucilage – it is a common thick , gluey substance, which is found in most of the plants. Plants use it as food storage agent . it is useful in gastro intestinal inflammatory disorders.

Medicinal properties and uses of it –

1- It acts as a very good diuretic. It can be used for many diseases like cardiac asthma, renal failure etc.

2- Breaks and rebreaks the kidney stones and that is the drug of choice of the urinary tract disease or infection.

3- It works as hepatoprotective agent and commonly found in many herbal liver products.

4- It acts as a very good anti oxidant and usually used in many herbal preprations.

5- It is widely used for the treatment of obesity. It reduces the subcutaneous fats.

6- It is effective in jaundice or hepatitis.

7- It has anti-aging ability and that can help us in keeping ourselves fresh and energetic.

8- It is a good medicine for disease of genital area and often use in homely medications.

9- It acts as very good renal tissue protective agent.

10- It is useful as an antidote in opium poisoning.

11- It helps in breakdown of renal stones and it is specialist for this purpose.

12- It is helpful in hydronephrosis and keeps the kidneys safe.

13- It is helpful in chronic renal diseases.

14- It helps in controlling of diarrhea and dysentery.

15- It works as antimicrobial agent.

16- It helps in controlling diabetes and reduces the chance of diabetic renal disease.

17- Root powder of Pashanbheda described for turbid urine of children. (i)

18- Decoction of root powder of its5 gm. with honey 10 gm. is useful in Amebic dysentery , Opium toxicity, Leucorrhea , Menorrhagia, Dysmenorrhea, Renal pain and Calculi .

19- Mix powder of *Pashanbheda* root, *Glycyrrhiza glabra*, *Pedalium murex* , *Hygrophila auriculata, Bamboo manna*, 1-1 part , sugar 5 parts with cow milk two times a day for Seminal weakness, Premature ejaculation, Spermatorrhea.

Research:

1 – The aqueous, alcoholic and acetone extracts of roots (20 mg./kg i v.) produced transient fall in B P of anaesthetized dogs. Only alcoholic extract potentiated pentobarbitone – induced hypnosis in mice in a dose of 50 mg/ kg. An oral dose of 0.5g/kg of alcoholic extract showed a significant diuretic activity in rats.(Sharma,1970).

2 – Alcoholic extract of rhizome showed anti-cancer activity in walker carcinosarcoma 256 in rats. It also showed anti- protozoal activity against Ent. Histolytica.(Dhara et al.1968).H

3- The aqueous extract had some diuretic effect in rats and insignificant anti – lithic activity in male rats (Maurya et al.1972)I

4 – In silico Antiurolithiatic screening of aerva lanata (L) Isolated constituents - Basavraj M Dinninath and Sunil S Jaldpure . Indian Journal of Pharamaceutical Education and Research / Vol. 49 /Issue -2 / April – June -2015 Page – 126- 133.

5 – Enoeavour Of Pashanbheda (Bergenia Ligulata (Wall.) In Urolithasis Prakash Sanjay Page 158-164

International Journal Of Applied Ayurved Research

6- Critical analysis of herbs acting on Mutravah Srotas . Savitha O Bhat , B. K. Ashok , Rabinaryan Acharaya . Ayu Volume 31 , Issue -2 . Page - 167-169

7 -Studies on Antimicrobial Potentials of *Aerva lanata* Fractions

B M Dinnimath And S S Jalalpure[2]

Kleu's college of pharamacy, Nehrunagar, Belgaum-590010

CONCLUSION: In the present era , herbs are being rediscovered , as people around the world seek a healthier and more natural life style and Pasanbheda is one of the important herbal plant . Berginia ligulata ia an important medicinal plant used for the treatment of various disease specially in renal stone and urinary tract infection. Pasanbheda is used in vitiated condition of vat pitta and kapha.

REFERENCES:

1. Sastry Dr J L N . Dravya guna vigyan , vol. 2 forwarded by Prof. K.C. Chunekar, Varanasi: Chaukhambha Orientalia; year 2005.
2. Nadkarni Dr. K.M., Indian Matria Medica, vol. 1, second edition ,revised and enlarge A. K. Nadkarni , Publisher Bombay Popular Prakashan : Year 2005.
3. Sharma Priyavrata , Namrupajnanam, satyapriya prakashan , Varanasi ,2000;
4. Sastry Dr J L N, Ayurvedokta Oushadha Niruktamala, Varanasi: Chaukhambha Orientalia, Year 2001
5. Shastri Kashi Nath and Chaturvedi Gorakh Nath Charak Samitha , Vidhyotini hindi commentoray Chaukhambha Orientalia, Varanasi. Print 2004; Vol. 1 (Sutra sthan , Nidan Sthan and Sharair Sthan)
6. Gupta Kaviraj Atridev, Edited by TripathiDr.BrambhaNand,Upadhyaya,Astha nghrdayam of Vagbhata, Chaukhambha Sanskrit Pratisthan , Delhi .
7. Chunekar Prof. K. C. edited by Late Pandey Dr. G. S., Bhavprakash Nighantu of Shri Bhavmishra, commentary by Chaukhambha Bharaati Academy , Varanasi.
8. Lucas Prof. D. Shanth Kumar ,Drava guna vigyan , vol.2 , Chaukhambha Visvabharaati , Varanasi : Reprint : Year 2013 .
9. Dr. Bapa Lal Vaidya Some Controversial Drugs in Indian Medicine , Chaukhambha Orientalia , Varanasi .
10. Dr. Bhautya Ramesh Kumar , Ayurvedic Medicinal Plants of India Volume 1 , Scientific Publishers ,Jodhpur , India .
11. Chopra RN, Nayar SL, Chopra IC. Glossary of Indian Medicinal Plants. 1956; C.S.I.R., New Delhi 2. Yaginuma A, Murata K, Matsuda H, β-Glucan and Bergenia ligulata as cosmetics ingredient. Fragrance J. 31: 2003; 114–119.
12. Panda H, Medicinal plant cultivation and their uses. National Institute of Industrial Research. 2002.
13. Dush B, Kashyap L. Herbal plants in kidney stone.In Materia Medica of Ayurveda. Concept Publishing Co.New Delhi.1979; 89.
14. Panday G.Medicinal Plants of Himalaya. Sri Satguru Publications. A Division of Indian Books Centres. Delhi. India.1995.
15. http://www. plantdatabase. cuk/Bergenia_cordifolia 1 of 3.
16. Badon AK, Bulletin of Botanical Survey of India. 32: 1990 and1993;103-115.
17. Kumar H,Chowdharay.S. Biodiversity and Traditional Knowledge Of Bergenia Sp. in Kumaun Himalaya. New York Science Journal.2009;1554-1568
18. Bahu CP, Seshadri RT, Advances in research in “Indian Medicine”, “Pashanbedi” drugs for urinary calculus, Udupa K.N.(Eds).1970;77- 98.
19. Harasoliya MS, Pathan JK, Khan N, Bhatt D, Patel UM. Effect of ethanolic extracts of Bergenia ligulata, Nigella sativa and combination on calcium oxalate urolithiasis in rats. Int Drug Formulation Res. 2(2): 2011; 268-280.
20. A Manual on Participatory Inventory and Management of Pakhenbed (Bergenia ciliata syn. Bergenia ligulata)

Based on results of case studies from six CFs of Ramechhap District. Nepal Swiss Community Forestry Project (NSCFP) Date: April 07, 2006 Ref. No. 24/062/63.

21. Pant S, Samant SS, Ethanobotanical observations in the Mornaula Reserve forest of Kumoun, West himalaya, India, Ethnobotanical leaflets. 14: 2010; 193-217.

22. Samant SS, Jitendra, Butola S, Sharama A. Assessment of diversity, distribution, conservation status and preparation of management plan for medicinal plants in the catchment area of Parbati Hydroelectric project Stage – III in Northwestern. Himalaya Journal of Mountain Science 4(1): 2007; 034-056.

23. Pant S, Samant SS, Arya SC. Diversity and indigenous household remedies of the inhabitants surrounding Mornaula reserve forest in West himalaya. Indian J Traditional knowledge. 8(4): 2009; 606-610.

24. Samal PK, Dhyani PP, Dollo M. Indigenous medicinal practices of bhotia tribal community in Indian central himalaya. Indian J. Traditional knowledge. 2010;1:140-144.

25. Sharama HK, Chhangte L, Dolui AK. Traditional medicinal plants in Mizoram, India Fitoterapia 72: 2001;146-161.

26. Ballabh B, Chaurasia OP, Ahmeda Z, Singha SB. Traditional medicinal plants of cold desert Ladakh used against kidney and urinary disorders. J Ethnopharamacology. 118(2): 2008;331-339. 18. Negi CS, Nautiyal S, Dasila L, Rao KS, Maikhuri RK.Ethnomedicinal Plant Uses in a small tribal community in a part of central himalaya, India. J. Hum. Ecol., 14(1): 2002; 23-31.

27. Saijyo J, Suzuki Y, Okuno Y, Yamaki H, Suzuki T, Miyazawa M. alphaglucosidase inhibitor from Bergenia ligulata. J.Oleo Science. 57(8): 2008; 431-435.

28. Singh N, JuyalV, Gupta AK, Gahlot M,. Evaluation of ethanolic extract of root of Bergenia ligulata for hepatoprotective, diuretic and antipyretic activites. J Pharamacy Research. 2(5): 2009;958-960.

29. Singh N, Gupta AK, Juyal V, A Review on Bergenia Ligulata Wall, International Journal of Chemical and Analytical Science. 1(4): 2010; 71-73.

30. Chowdharay S, Haraish kumar,Verma DL. Biodiversity and traditional knowledge of Bergenia spp. In kumaun himalaya. New York Sci J. 2(6): 2009; 105-108.

31. HavagiraYR, Chitme SA, Jain SK, Sabharawal M. Herbal treatment for urinary stones, Int Pharamaceutical Sci Res. 1(2): 2010;58-60

32. Shah GM, Khan MA. Check List of medicinal plants of Siran valley Mansehra-Pakistan. Ethnobotanical Leaflets. 10: 2006; 63-71.

33. Aggarwal BB, Reuter S, Kannappan R, Yadev VR, Park BD, Kim JK, Gupta SC, Phromnoi K, Sundaram C, Prasad S, Chaturvedi MM, Sung B. Identification of novel anti-inflammatory agents from ayurvedic medicine for prevention of chronic Diseases.Curr Drug Targets. 12(11): 2011; 1595–1653.

34. Garodia P, Ichikawa H, Malani N, Sethi G, Aggarwal BB. From ancient medicine to modern medicine: ayurvedic

concepts of health and their role in inflammation and cancer. JSociety for Integrative Oncology. 5(1): 2007; 1-16.

35. Aggarwal BB, Ichikawa H, Garodia P, Weerasinghe P, Sethi G, Bhatt ID, Pandey MK, Shishodia S, Nair MG. From traditional ayurvedic medicine to modern medicine: identification of therapeutic targets for suppression of inflammation and cancer. Expert Opin.Ther. Targets 10(1): 2006;87-118.

36. Satish H, Dang R. Antiurolithiatic herbal drugs- a review. Biomed. 1: 2006; 95-119.

37. Tambekar DH, Dahikar SB. Antibacterial potential of some herbal preparation:An alternative medicine in treatment of enteric bacterial infection. Int j pharamacy Pharamaceutical sci. 2(4): 2010; 176-179.

38. Garimella TS, Jolly CI, NarayananS. In vitro study on antilithiatic activity of seeds of Dolichos biflorus and rhizome of Begenia ligulata wall. Phytother: res., 15(4): 2001;351-356.

39. Solanki R. Treatment of skin diseases through medicinal plant in different regions of the world. Int J Biomed Res. 2(1): 2011;73-80.

40. Venkatadri R, Guha G, Rangasamy AK. Evaluation of antioxidant activities of Bergenia ciliata rhizome. Rec. Nat.Prod. 4(1): 2010;38- 48.

41. Joshi V S, Parekh B B, Vaidya A B. Herbal extracts of Tribulus terrestris and Bergenia ligulata inhibit growth of calcium oxalate monohydrtate crystals in vitro. J Cryst.Growth. 275: 2005;1403- 1408.

42. Basir S, Gilani A.H. Antiurolithic effect of Bergenia ligulata rhizome, an explanation of underlying mechanisms. Journal of Ethnopharamacology. 122(1): 2009;106-116.

43. Parajuli DP, Gyawali AR, Shrestha BM. Manual of important nontimber forest products in nepal. Training and Manpower Int. J. Pharam. Sci. Rev. Res., 15(2), 2012; nº 05, 24-30 ISSN 0976 – 044X International Journal of Pharamaceutical Sciences Review and Research Page 30 Available online at www.globalresearchonline.net Development in Community Forestry Management Project PD 103/90 Rev.1(F) Institute of Forestry/ International Tropical Timber Organization (ITTO) Project, Pokharaa, Nepal;1998: 1-31

44. Singh AP. Didymocarpus pedicellata: The Lithotriptic Ethnomedicine. Ethnobotanical Leaflets 11: 2007;73-75

45. Li WC, Gou FG, Zhang LM, Yu HM, Liu X, Lin C. The situation and prospect of research on Bergenia purpurascens. J. Yunnan Agric. Uni. 21: 2006;845-850.

46. Umashankar D, Chandra R, Chawla AS. High Pressure Liquid Chromatographic Determination of Bergenin and (+)-Afzelechin from Different Parts of Paashaanbhed (Bergenia ligulata Yeo) Phytochemical Analysis. 10: 1999;44-47.

47. Singh N, Juyal V, Gupta AK, Gahlot M, Harairatan. Preliminary Phytochemical Investigation of Extract of Root of Bergenia lgulata. J pharamacy res. 2(9): 2009;1444-1447

48. Reddy UDC, Chawla AS, Deepak M, Singh D, Handa SS. High pressure liquid chromatographic determination of bergenin and (+)- afzelechin from different parts of

Paashaanbhed (Bergenia ligulata Yeo). Phytochem. Anal. 10: 1999;44-47.

49. Chauhan SK, Singh B, Agrawal S. Simultaneous determination of bergenin and gallic acid in Bergenia ligulata wall. by highperformance thin-layer chromatography. J. Aoac. Int. 83: 2000;1480-1483. 42. Ji LJ. Bergenin. HPLC Determination of two species of Bergenia growing in Tibet. Acta Bot. Boreal.-Occident. Sin. 25: 2005;397-399.

50. Singh DP, Srivastava SK, Govindarajan R, Rawat AKS. Highperformance liquid chromatographic determination of bergenin in different Bergenia species. Acta Chromatographica. 19: 2007;246- 52. 44. Asia B, Liu F. Immunoenhancing action of Bergenin.Acta.Academiae Medicine Xinjiang. 21: 1998;189-193

51. KashimaY, Yamaki H, Suzuki T, Miyazawa M. Insecticidal effect and chemical composition of the essential oil from Bergenia ligulata. J Agric Food Chem. 21(63): 2011;116.

52. Umashankar DC. Phytochemical and anti-inflammatory investigations of Bergenia ligulata Yeo. PhD Thesis. Punjab University, Chandigarh, India. 1997.

53. Rao RJ, Tiwari AK, Kumar US, Reddy SV, Ali AZ, Rao JM. Novel 3-0- acyl mesquitol analoguses as free- radical scavengers and enzyme inhibitors. Synthesis, biological evalution and structure-activity relationship. Bioorg.Med.Chem.Lett. 13: 2003;2777-2780.

54. Youshikawa M, Nishida N, Shimoda H, Takada M, Kawaharaa Y, Matsuda. Polyphenol constituents from Salacia species: quantitative analysis of mangiiferin with alpha- glucosidase and aldose reductase inhibitory activities . Yakugaku Zasshi. 1231: 2001;371-378.

55. Bergenia ciliata (Haw.) sternb. A rare promising medicinal plant needing conservation and cultivation. Enviro news. april-september: 11: 2006;9

56. Shukla DS, RavishankarVJ, Bhavasar B. Preliminary study on the hepatoprotective activity of methanolic extract of Paederia foetida leaf. Fitoterapia . LX VII (2): 1996; 106-109.

57. Naik SR, Kalyanpur SN, Sheth UK. Effect of antiinflammatory drugs on glutithione levels and liver succinic dehydrogenase activity in carrageenan edema and cotton pellet granuloma in rat. Biochemical Pharamacology. 21: 1972;511-516.

58. Winter CA, Ristey EA, Nuss GW. Carrageenan induced edema in hind paw of the rat as an assay for antiinflammatory drugs. Proceeding of Society of Experimental Biology Medicine 111: 1962;544-552.

59. Rai RP, Rajendra Babu M, Rao KRV. Studies on antipyretic, analgesic and hypoglycaemic activities of root of Gynandropsis gynandra linn. Indian Drugs, 34(12): 1997; 690-693.

60. Yadav RD, Jain SK, Shashi Mahor S, Bharati JP, Jaiswal M. Herbal plant used in the treatment of urolithiasis: a review. Int J Pharamaceutical Sci Res. 2(6): 2011;1412-1420.

61. Lipschitz WL, Hadidian Z, Kerpscar AJ. Pharamacol Exp. Ther. 1943;79-97.

62. Kuppast IJ, Nayak PV. Diuretic activity of Cordia dichotoma forster fruits. Ind. J Pharam.Edu. Res. 39(4): 2005;67-74.
63. Murugesan T, Manikandan L, Suresh KB. Evalution of diuretic potential of Jussiaea suffruticosa linn. extract in rats. Ind.J.Pharam.Sci. 2000; 150-153.
64. Joshi VS, Parekh BB, Joshi MJ, Ashok Vaidya DB. Inhibition of the growth of urinary calcium hydrogen phosphate dihydrate crystals with aqueous extracts of Tribulus terrestris and Bergenia ligulata. Urol Res . 33: 2005; 80–86.
65. Arora R, Chawla R, Marwah R, Arora P, Sharama RK, Kaushi,V, Goel R, Kaur A, Silambarasan M, Tripathi RP, Bharadwaj JR, Potential of complementary alternative medicine in preventive management of novel H1N1 Flu (Swine Flu) Pandemic: Thwarting potential disasters in the bud. Evidence-Based Complementary and Alternative Medicine. 2011: 2011; 11-16
66. WHO, in Progress Report by the Director General, Document NO.A44/20, 22 March 1991, World health organization.Geneva.
67. Deepa PK, Usha PTA, Chandrasekharaan AM. Antipyretic activity of seeds from red and white type of Nelumbo nucifera in albino rat. Veterinary World. 2(6): 2009; 213-214.
68. Ghosh MN, Fundamentals of Experimental Pharamacology. Scientific Book Agency Kolkata, 1984; 2nd edition.156.
69. Mitra SK, Saxena E, Babu UV. Herbal composition for maintaining/caring the skin around the eye, methods of preparing the same and uses therefore. US patent 7, 2010;785,637 64. Pelczar MJ, Chan ECS, Krieg NR. Microbiology. 5thed. MC Graw Hill.1993; 578.
70. Sajad T, Zargar A, Ahmad T, Bader GN, Naime M, Ali S. Antibacterial and Anti-inflammatory Potential Bergenia ligulata. Am. J. Biomed. Sci. 2(4): 2010;313-321.
71. Ruby K, Chauhan R, Sharama S, dwivedi J. Polypharamacological activities of Bergenia species. International Journal of Pharamaceutical Sciences Review and Research. 13(1): 2012; 100- 110.

Corresponding Author: Dr.G. S. Indoriya, Principal, Pt.M.M.M.Government Ayurved College,Udaipur Rajasthan.
Email: drashwinisharma1972@gmail.com

Source of support: Nil
Conflict of interest: None Declared


Ammannia baccifera L.
Photo: Surajit Koley @ Hooghly


@ R. Pooma