Research Article

www.ijrap.net

AN EDUCATIONAL PACKAGE ON LESSER KNOWN HERBAL MEDICINES IN INDIA

Jaiswal Neelam¹, Jaiswal Poonam^{2*}, Swamy Deepa³

¹Research scholar, Department of Home Science, J.D.B Government Girl's College, Kota, India

²Sr. Lecturer, Department of Botany, J.D.B Govt. Girl's College, Kota, India

³Sr. Lecturer, Department of Home Science, J.D.B Government Girl's College, Kota, India

Received on: 09/03/16 Revised on: 12/04/16 Accepted on: 20/04/16

*Corresponding author

E-mail: poonamjaiskota@gmail.com

DOI: 10.7897/2277-4343.073116

ABSTRACT

Indian traditional medicine system is based on herbs and herbal products. But in recent time due to fast action and easy accessibility conventional allopathic medicines has gained importance. Recent studies have shown that due to side effects and increasing cost of allopathic medicines people are now shifting towards traditional herbs based medicines and lifestyle modulation by including herbs and herbal products in their daily diet. In the present study it was found that on an average 44.48% population of Ghaziabad is aware about common herbal medicines which are easily available in homes and surroundings whereas only 20.58% people know about the medicinal usage of lesser known herbal medicines. More than 90% of the population is not aware of the medicinal use of some of the lesser known herbal medicines. 34% of the people use herbal and ayurvedic medicines. 36.84% of the population do not use herbal medicines because people do not know its medicinal property. In context of the results of the study an educational package is prepared with the objectives to educate the people about lesser known herbal medicines.

Keywords: Herbal medicines, educational package, lesser known herbal medicines.

INTRODUCTION

A number of medicinal plants, traditionally used for over 1000 years are present in herbal preparations of Indian traditional health care systems. But conventional allopathic medicines have gained popularity due to easy accessibility and fast effect. In recent years due to side effects of conventional medicines, people

are now turning towards medicines of natural sources like herbal or phytomedicines.

METHODOLOGY

In order to know the awareness about herbal medicines a survey was conducted in Ghaziabad city of Uttar Pradesh, India about the awareness about lesser known plants of medicinal use.

Figure 1: Site map of Ghaziabad district (A) and Ghaziabad city (B) Uttar Pradesh

A total of 500 People were asked about medicinal use of lesser known plants like Vajradanti, Kasmard, Lasoda, Avena, Bharangi, Gurmar, Shatawar, Amaltas, Adusa, Ashok, Bhiringraj, Mulethi, Giloy, Vacha, Shirish, Jatamansi, Nirgundi, Jyotishmati, Kalmegh, Gokharu and Chirata. Questions were also asked about the system of medicines they generally use and reason for not using herbal medicines. Based on the results of the survey an educational package was prepared to make the people aware about herbal medicines.

The following questions were incorporated in the questionnaire:

1. Which medicine system do you generally use? (Allopathy/ Homeopathy, Unani etc./Ayurvedic and herbal medicines)
2. Do you know the medicinal use of common herbs of our kitchen and garden? (Ginger/ Garlic/ Cinnamon/ Cardamom/Basil/ Mint/Coriander/ Asafoetida/ Flex seeds/ Nigella seeds)

3. Do you know the medicinal use of following herbs? (Vajradanti/ Kasmard/ Lasoda, Avena/ Bharangi/ Gurmar/ Shatawar/ Amaltas/ Adusa/ Ashok/ Bhringraj/ Mulethi, Giloy/ Vacha/ Shirish/ Jatamansi, Nirgundi Jyotishmati, Kalmegh, Gokharu and Chirata)
4. What is the reason for not using herbal medicine? (Do not know its use/ Not reliable/ Not easily available/ Not reliable because cannot identify the herb/ Cannot trust on herbal medicine)

Data was collected and presented in the form of percent population of total respondents. Data was statistically analysed

and response of questions were presented as average population who know the medicinal use of given herbs. Result based on response regarding Mulethi, Giloy/ Vacha/ Shirish/ Jatamansi, Nirgundi Jyotishmati, Kalmegh, Gokharu and Chirata was presented separately because peoples response was found below 05%. Result is presented in the form of bar diagram and pie diagram.

Literature was reviewed and medicinal properties of plants used in Ayurvedic system of medicines were compiled in the educational package.

RESULTS

Table 1: List of lesser known medicinal plants and peoples response about awareness of its medicinal use

Lesser Known Medicinal Plants	Response of people (% population)		People response of the way herbs are used
	Yes	No	
Vajradanti	22.63	71.58	teeth related problems
Kasmard	9.47	84.74	Cough
Lasoda	11.58	82.63	Stomach related problems
Avena	15.26	78.95	Maintains good digestion
Shatawar	18.95	75.26	After child birth, arthritis
Adusa	20	74.21	cough
Amaltash	9.44	84.77	Problem related to digestion
Ashok	12.26	81.95	Problems related to women
Giloy	40.53	53.68	Cough and cold
Mulethi	42.11	52.11	Sore throat
Bhringraj	24.21	70	Hair care
Average	20.58	73.62	

Table 2: Medicinal uses of lesser known herbal medicines

Botanical name of Medicinal Plants/ Common name/ Family	Medicinal Properties and activities
<i>Nardostachys jatamansi</i> Dc. Jatamansi / Caprifoliaceae	Improve brain functions and intelligence, rejuvenative tonic for mind, memory enhancer ¹
<i>Acorus calamus</i> Vacha or Bach /Acoraceae	Nervine tonic and an anti-stammering drug, have positive effect on memory and learning process ²
<i>Gymnema sylvestre</i> Gurmar or Madhunashini /Apocynaceae	Plays significant role in curing diabetes type I & II ³
<i>Boerhavia diffusa</i> Punarnava/Nyctaginaceae	Hepatoprotective ⁴ , cure for kidney stones, reduce inflammation and pain in joints in Arthritis
<i>Vitex negundo</i> Nirgundi / Verbenaceae	Muscle relaxant, pain relieving, anti anxiety, anti-asthma, Anticonvulsant, hepatoprotective, etc. ⁵
<i>Clerodendrum indicum</i> Bharangi /Lamiaceae	Used in treating allergic rhinitis, asthma, fever and other inflammatory conditions. ⁶
<i>Barleria prionites</i> Vajradanti/Acanthaceae	Gastroprotective ⁷ , leaves used in toothache and bleeding gums, dental caries, respiratory diseases.
<i>Tinospora cordifolia</i> Giloy or Guduchi/Menispermaceae	Immuno-modulatory ⁸ , Anti-bacterial ⁹ , adaptogenic ¹⁰
<i>Curculigo orchoides</i> Linn. Kali Musali/Hypoxidaceae	Aphrodisiac, immunostimulant, hepatoprotective, antioxidant, anticancer and antidiabetic activities. ¹¹
<i>Glycyrrhiza glabra</i> Linn. Mulethi, Yashtimadhu/Fabaceae	Herb chewed for voice improvement, Anti obesity ¹² anti-oxidant, used for anti aging treatment
<i>Saraca indica</i> Ashoka / Fabaceae	Antibacterial ¹³ , used in bleeding disorders, menorrhagia, diarrhoea etc.
<i>Bacopa monnieri</i> Brahmi /Plantaginaceae	Improve learning and memory ¹⁴ , depression ¹⁵ , anxiety ¹⁶ psychosis, epilepsy and stress ¹⁷
<i>Andrographis paniculata</i> Kalmegh /Acanthaceae	Hepatoprotective ¹⁸ , anticancer and immunostimulant ¹⁹
<i>Centella asiatica</i> Gotu kola/Apiaceae	Nervine tonic, rejuvenant, sedative, tranquilizer and intelligence promoting property ²⁰ , antidepressant ²¹
<i>Psoralea corylifolia</i> L. Buguchi/Kashtanashini /Fabaceae	Antibacterial ²² , antitumor, antioxidant, anti-inflammatory, antifungal and immunomodulatory
<i>Mimusops elengi</i> Bakul, Maulashree /Sapotaceae	Useful in asthma ²³ , Diuretic ²⁴ , antioxidant ²⁵ , improves learning and memory ²⁶ , anti gastric ulcer ²⁷ , antiviral ²⁸
<i>Convolvulus pluricaulis</i> / <i>C. microphyllus</i> Shankhpushpi /Convolvulaceae	Brain tonic, used to treat epilepsy ²⁹ , nervous weakness, insomnia, mental as well as physical fatigue, improves memory and capacity of brain ³⁰
<i>Asparagus racemosus</i> Wild. Shatavari/Asparagaceae	Antiurolithiatic ³¹ , antimicrobial ³² , helps mother to lactate more, useful in treating infertility

<i>Tribulus terrestris</i> Gokharu/Gokshura/Zygophyllaceae	Diuretic ³³ , antibacterial ³⁴
<i>Pedaliu murax</i> L. Bada Gokharu /Pedaliaceae	cures urinogenital disorders ³⁵ , anti nephrolithiatic activity ³⁶
<i>Cassia occidentalis</i> Linn Kasmard/ Kasoundi /Fabaceae	Analgesic and antipyretic activity ³⁷
<i>Commiphora mukul</i> /C. <i>wightii</i> Guggul or guggulu /Burseraceae	Used in treatment of elevated blood lipids and atherosclerosis ³⁸ , skin diseases including acne and psoriasis, anti-inflammatory and analgesic ³⁹
<i>Rauwolfia serpentina</i> Sarpagandha/Apocynaceae	Useful in the treatment of hypertension, ⁴⁰ breast cancer, ⁴¹ antimicrobial, antioxidant ⁴² Hypolipidaemic ⁴³
<i>Terminalia arjuna</i> Arjun /Combretaceae	Cardioprotective and cardiac stimulant ⁴⁴ , antioxidant ⁴⁵
<i>Withania somnifera</i> Ashwagandha/Indian Ginseng /Solanaceae	Immunomodulator and adaptogenic ⁴⁶ , anti-stress and rejuvenator ⁴⁷ , anti-arthritis properties ⁴⁸
<i>Adhathoda vasica</i> Nees. Adusa /Acanthaceae	Antimicrobial against clinical pathogens ⁴⁹ , anti ulcer activity ⁵⁰ , hepato-protective ⁵¹
<i>Eclipta alba</i> Bhringraj /Asteraceae	Hepato-protective activity ⁵² , hair growth promotion activity ⁵³ , antifungal activity ⁵⁴
<i>Solanum indicum</i> Linn. Brihati /Solanaceae	Cardiotonic ⁵⁵ , anti-dermatophytic ⁵⁶ , anti bacterial ⁵⁷ , anti oxidant and anthelmintic ⁵⁸
<i>Holorrhena antedysentrica</i> Kutaj /Apocyanaceae	Anti-fungal activity ⁵⁹ , anti-malarial activity ⁶⁰
<i>Celastrus paniculatus</i> Willd. Jyotishmati / Celastraceae	Improves memory ⁶¹ , anti-oxidant ⁶² , neuroprotective effects against increased oxidative stress ⁶³
<i>Swertia chirata</i> Bunch Ham Chriayata /Gentianaceae	Hypoglycaemic agent ⁶⁴ , anti-carcinogenic ⁶⁵
<i>Rubia cordifolia</i> L. Manjishtha /Rubiaceae	Wound healing property ⁶⁶ , Hepatoprotective ⁶⁷

In the present study it was found that on an average only 20.58% people know about the medicinal usage of Vajradanti, Kasmard, Lasoda, Avena, Shatawar, Adusa, Amaltash, Ashok, Giloy, Mulethi and Bhringraj. More than 90% of the population is not aware of the medicinal use of some of the lesser known herbal medicines which include Sirish, Jatamansi, Nirgundi, Jyotishmati, Kalmegh, Gokharu, Chirata, Bharangi, Gurmar and

Vacha. 34% of the people use herbal and ayurvedic medicines, whereas 36% of people use allopathic and 30% people use homeopathic, unani and other medicines. 36.84% of the population do not use herbal medicines because people do not know its medicinal property whereas 23.16% population do not use because it is not easily available.

Figure 2: Pie diagram showing percent population using different systems of medicines

Figure 3: Bar diagram showing percent population having different reasons for not using herbal medicines.

CONCLUSION

It can be concluded that people in fast growing cities like Ghaziabad are not aware of medicines of the plant origin. Though allopathic is used by maximum share of population herbal and ayurvedic system of medicine is used by large number of population. Method to use herbal medicines and lack of availability are found to be the two most important reasons of people not using herbal medicines.

DISCUSSION

Increasing health care costs together with the threat of growing side effects risks of conventional allopathic medicine has compelled people to think about low cost alternative medicines having low and/or nil side effects. Indian traditional medicine system is based on herbs but people do not know the medicinal properties of these herbs or even cannot identify them. With regard to growing interest in Ayurveda or other herbal based medicine systems in the world people should be made aware of the easily available, low cost herbal medicines. Success of Government of India's efforts to promote alternative forms of medicines which include ayurveda as one of medicine system is based on the popularity of herbal medicines and its usage.

REFERENCES

- Hanumanthachar Joshi and Milind Parle; *Nardostachys jatamansi* Improves Learning and Memory in Mice, Journal of Medicinal Food, 2006;9(1):113-118.
- Shiddamallayya N Yasmeen, Azra Gopakumar K; Hundred common forest medicinal plants of Karnataka in primary healthcare, Indian Journal of Traditional Knowledge, 2010;9(1):90-95
- Mishra Rakhi et al.; A review of herbal antidiabetic drugs, Journal of Applied Pharmaceutical Science, 2011;1(6): 235-237
- Rawat A.K.S. et al.; Hepatoprotective activity of *Boerhaavia diffusa* L. roots — a popular Indian ethnomedicine, Journal of Ethnopharmacology, 1997;56(1):61–66
- Tandon, Vishal R; Medicinal uses and biological activities of *Vitex negundo*, Natural Product Reports, 2005;4(3):162-165
- Sanayaima RK et al.; Cryopreservation of in vitro grown shoot tips of *Crateva nurvala* Buch Ham., an important medicinal tree. Cryoletters. 2006;27(6):375-386
- Manjusha Choudhary et al.; Gastro protective potential of chloroform leaves extract of *Barleria prionitis* Linn. : From traditional use to scientific approach, Advances in Chemistry and Biochemistry Sciences, 2014;1(1):1-11
- Bharti Umretia et al.; Immunomodulatory activity of Guduchi Ghana (Aqueous Extract of *Tinospora Cordifolia* Miers), National Journal of Integrated research in medicine, 2013;4 (3): 90-96
- Shanthi V. and R. Nelson; Antibacterial activity of *Tinospora cordifolia* (Willd) Hook.F.Thoms on urinary tract pathogens, Int. J. Curr. Microbiol. App. Sci, 2013;2(6): 190-194
- Nayampalli, S. et al.; Study of antiallergic acid bronchodilator effects of *Tinospora cordifolia*. Indian. J. Pharmacol.1982; 14: 64.
- Chauhan NS et al.; *Curculigo orchioides*: the black gold with numerous health benefits. Journal of Chinese integrative medicine, 2010; 8(7):613-23.
- Rahul B. et al.; Antiobesity and lipid lowering effects of *Glycyrrhiza chalcones*: Experimental and computational studies, Phytomedicine, 2011;18(8–9):795–801
- Sarojini Nayak et al.; Antibacterial activity study of *Saraca indica* Leaves extract, Int. J. Pharm. Res. and Development, 2011;3(3):19
- Vohora D et al.; Protection from phenytoin-induced cognitive deficit by *Bacopa monniera*, a reputed Indian nootropic plant, J Ethnopharmacol, 2000;71(3):383.
- Sairam K et al.; Antidepressant activity of standardized extract of *Bacopa monniera* in experimental models of depression in rats, Phytomedicine, 2002;9(3):207.
- Singh R H & Singh L; Studies on the anti-anxiety effect of the medhya rasayana drug Brahmi (*Bacopa monniera* wetst), Res Ayur Siddha, 1980;1:133.
- Chowdhuri D K et al.; Antistress effects of bacosides of *Bacopa monniera*: Modulation of Hsp70 expression, superoxide dismutase and cytochrome P450 activity in rat brain, Phytother Res, 2002;16:639.
- Padmesh P et al.; The use of RAPD in assessing genetic variability in *Andrographis paniculata* Nees, a hepatoprotective drug. Curr Sci, 1999;76:833-835.

19. Kumar RA *et al.*; Anticancer and immunostimulatory compounds from *Andrographis paniculata*. J Ethnopharmacol. 2004; 92(2-3):291-295.
20. Veerendra Kumar MH, Gupta YK.; Effect of different extracts of *Centella asiatica* on cognition and markers of oxidative stress in rats. J Ethnopharmacol. 2002; 79:253-60.
21. Chen Y *et al.*; Effect of total triterpenes from *Centella asiatica* on the depression behaviour and concentration of amino acid in forced swimming mice. Zhong Yao Cai. 2003;26:870-3.
22. Khatune NA *et al.*; Antibacterial compounds from the seeds of *Psoralea corylifolia.*, Fitoterapia, 2004; 75(2):228-30.
23. Manjeshwar SB *et al.*; Chemistry and medicinal properties of the Bakul (*Mimusops elengi* Linn): A review. Food Res Int. 2011; 44(7):1823-1829.
24. Basavaraj CK, Purnima A.; Diuretic activity of extracts of *Mimusops elengi* Linn. Bark. Int J Green Pharm. 2010:90-92.
25. Chaiyan B *et al.*; Antioxidant capacity and phenolic content of *Mimusops elengi* fruit extract. Kasetsart J (Nat Sci), 2009;43:21-27.
26. Hanumanthachar J, Milind P.; Evaluation of the memory and learning improving effects of *Mimusops elengi* in Mice. Int J Drug Disc Herbal Res. 2011;1(4):185-192.
27. Shah PJ *et al.*; Study of *Mimusops elengi* bark in experimental gastric ulcers. J Ethnopharmacol. 2003; 89(2-3):305-311.
28. Kusumoto I T *et al.*; Screening of various plant extracts used in Ayurvedic medicine for inhibitory effects on human immunodeficiency virus type 1 (HIV-1) protease. Phytother Res. 1995; 9:180-184.
29. Shah VC, Bole P V.; Further pharmacognostic studies on the drug Shankhpushpi. J Univers Bombay, 1960; 29:154-165
30. Upadhyaya AS, Kambhojkar MS.; Studies on Ayurvedic drug Shankhpushpi from Western Maharashtra medicobotanical reported aspects. Bullet Med Ethnobot Res 1993;14(1-2):64-69
31. Narumalla Jagannath *et al.*; Study of antiurolithiatic activity of *Asparagus racemosus* on albino rats, Indian J Pharmacol. 2012; 44(5): 576-579.
32. Patel L. S., R. S. Patel; Antimicrobial Activity of *Asparagus Racemosus* Wild From Leaf Extracts – a Medicinal Plant, Int J Scientific and Research Publications, 2013; 3(3):1-3
33. Al-Ali M *et al.*; *Tribulus terrestris*: preliminary study of its diuretic and contractile effects and comparison with *Zea mays*; J Ethnopharmacol. 2003;85(2-3):257-60.
34. Said Kianbakht, Fereshteh Jahaniani; Evaluation of Antibacterial activity of *Tribulus terrestris* L. Growing in Iran, Iranian Journal of Pharmacology and Therapeutics, 2003;2(1):22-24
35. Thamizhmozhi M, *et al.*, Phytochemical and Pharmacognostical studies on *Pedaliurus murex* Linn., Int. J. Res. Ayurveda Pharm, Jan-Feb, 2011;2(1):253-258
36. Thamizhmozhi M, *et al.*; Evaluation of anti-nephrolithiatic activity of *P. murex* L. leaves in albino rats, Biosci. Biotechnol. Res. Asia. 2009;6(2):907-910A
37. Sini K. R. *et al.*; Analgesic and antipyretic activity of *Cassia occidentalis* Linn, Annals of Biological Research, 2011; 2 (1):195-200
38. Nityanand S, Kapoor NK.; Hypocholesterolemic effect of *Commiphora mukul* resin (Guggal). Indian J Exp Biol. 1971; 9:367-77.
39. Kimura I *et al.*; New triterpenes, myrrhanol A and myrrhanone A, from guggul-gum resins, and their potent anti-inflammatory effect on adjuvant-induced air-pouch granuloma of mice. Bioorg Med Chem Lett. 2001;23;11(8):985-9
40. Frank. A, Finnerty; The value of *R. serpentina* in the hypertensive patient, The American journal of Medicine. 1959;17:202-205.
41. Stanford J. L. *et al.*; *Rauwolfia* use and breast cancer: a case-control study, Journal of the National Cancer Institute, 1986;76(5):817-822.
42. Harisaranraj R. *et al.*; “Phytochemical based strategies for pathogen control and antioxidant capacities of *Rauwolfia serpentina* extracts,” Recent Research Science Technology, 2009;1(2):67-78.
43. Qureshi S. A. and S. K. Udani; Hypolipidaemic activity of *Rauwolfia serpentina* Benth, Pakistan Journal of Nutrition, 2009;8(7):1103-1106.
44. Karthikeyan K *et al.*; Cardioprotective effect of the alcoholic extract of *Terminalia arjuna* bark in an in vivo model of myocardial ischemic reperfusion injury. Life Sci., 2003;10;73(21):2727-39.
45. Savitha G.M. *et al.*, A comparative study on the antioxidant activity of two conventional Ayurvedic formulation containing *Terminalia arjuna*: Partha arishta and Arjuna ghrita, Int. J. Res. Ayurveda Pharm, Jan-Feb, 2016; 7(Suppl 1): 90-93 <http://dx.doi.org/10.7897/2277-4343.07135>
46. Singh N *et al.*; Evaluation of ‘adaptogenic’ properties of *Withania somnifera*. Proc Indian Pharmacological Society. 1976;17
47. Singh N *et al.*; *Withania somnifera* (Ashwagandha) A rejuvenator herbal drug which enhances survival during stress (An adaptogen), Int J Crude Drug Res. 1982;3:29-35.
48. Singh N *et al.*; A Placebo Controlled Clinical Trial of *Cyprus rotundus*, *Withania somnifera* and their Combination in cases of Rheumatoid Arthritis. Proc International Seminar; 1986;2:18-21.
49. Josephin Sheeba B and Selva Mohan. T.; Antimicrobial activity of *Adhatoda vasica* against clinical pathogens, Asian Journal of Plant Science and Research, 2012;2(2):83-88
50. Shrivastava N *et al.*; Anti-ulcer activity of *Adhatoda vasica* Nees. J Herb Pharmacother. 2006;6(2):43-9.
51. Rayese Ahmad *et al.*; Hepatoprotective activity of ethyl acetate extract of *Adhatoda vasica* in swiss albino rats, International Journal of Current Research and Review. 2013; 5(6): 16-21
52. Sunita Dalal *et al.*; Phytochemical Screening of Methanolic Extract and Antibacterial Activity of Active Principles of Hepatoprotective Herb, *Eclipta alba*, Ethnobotanical Leaflets, 2010;14: 248-58.
53. Datta K *et al.*; *Eclipta alba* extract with potential for hair growth promoting activity. J Ethnopharmacol. 2009; 30;124(3):450-6.
54. Venkatesan S. and Ravi R.; Antifungal activity of *Eclipta alba*. Indian J Pharamceutical Sci, 2004;97-98.
55. Bhatia Nitish *et al.*; Evaluation of Cardioprotective Activity of Methanolic Extract of *Solanum Nigrum* Linn. In Rats. Int. J. Drug Dev. & Res. 2011;3(3):139-147
56. Kotoky J. *et al.*; Antidermatophytic activity of *Solanum indicum* L. from North East India, Journal of Pharmacy Research, 2012;5(1):265
57. Gavimath C.C. *et al.*; Antibacterial potentials of *Solanum indicum*, *Solanum xanthocarpum* and *Physalis minima*. Int J Pharmaceutical Applications, 2012;3(4):414-418
58. Prashanta Kumar Deb *et al.*; Evaluation of in-vitro Antioxidant and Anthelmintic Activity of *Solanum indicum* Linn. Berries, Indo American Journal of Pharmaceutical Research, 2013;3(5): 4123-4130
59. Jyoti R Rout *et al.*; Antifungal Activities of Extracts of *Holarrhena antidysenterica* Wall. and *Plumbago zeylanica*

- Linn. against *Aspergillus* species, Plant Science Research; 2008;30(1&2):61-64.
60. Gaurav Verma *et al.*; Anti-malarial activity of *Holarrena antidysenterica* and *Viola canescens*, plants traditionally used against malaria in the Garhwal region of north-west Himalaya, Malaria Journal; 2011;10:20
 61. Bhaumathy M *et al.*; Nootropic activity of *Celastrus paniculatus* seed, Pharm Biol.2010; 48(3):324-7.
 62. Kumar MH, Gupta YK; Antioxidant property of *Celastrus paniculatus* willd: a possible mechanism in enhancing cognition., Phytomedicine.2002;9(4):302-11.
 63. Godkar P *et al.*; *Celastrus paniculatus* seed water soluble extracts protect cultured rat forebrain neuronal cells from hydrogen peroxide-induced oxidative injury., Fitoterapia.2003;74(7-8):658-69.
 64. Bajpai MB *et al.*; Hypoglycemic effect of swerchirin from the hexane fraction of *Swertia chirayita*. Planta Med.1991;57: 102-104.
 65. Prosenjit Saha *et al.*; Evaluation of the anticarcinogenic activity of *Swertia chirata* Buch.Ham, an Indian medicinal plant, on DMBA-induced mouse skin carcinogenesis model, Phytotherapy Research, 2004;18(5):373–378
 66. R. Karodi *et al.*; Evaluation of wound healing activity of a crude extract of *Rubia cordifolia* L. (Indian madder) in mice, International journal of Applied Research in Natural Products, 2009;2(2):232-235
 67. Guntupalli M. *et al.*; Hepatoprotective effects of rubiadin, a major constituent of *Rubia cordifolia* Linn., Journal of Ethnopharmacology, 2006;103(3):484–490

Cite this article as:

Jaiswal Neelam, Jaiswal Poonam, Swamy Deepa. An educational package on lesser known herbal medicines in India. Int. J. Res. Ayurveda Pharm. May - Jun 2016;7(3):75-80
<http://dx.doi.org/10.7897/2277-4343.073116>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of IJRAP editor or editorial board members.