



Marketing of some important medicinal plants in Pune city of Maharashtra

M.K. DESALE AND P.B. BHAMARE

ABSTRACT

The present compilation gives an account of some important medicinal plants mostly marketed for curing different diseases. A total of 39 medicinal plants belonging to 26 families were reported from the study area. Combrataceae was the dominant family with 3 taxa while Solanaceae, Asclepiadaceae, Euphorbiaceae, Apiaceae followed with 2 taxa each. Liliaceae, Apocynaceae, Cucurbitaceae, Acanthaceae, Rutaceae, Caesalpiniaceae, Siliaceae, Zingiberaceae, Plumbaginaceae, Menispermaceae, Bursaraceae, Zygophyllaceae, Verbenaceae, Symplocaceae, Papilionaceae, Pinaceae, Malvaceae, Amaranthaceae and Dashmul (collection of 10 plants) represented by one taxa each. 10 medicinal plant dealers were interviewed to collect more information about marketing of the medicinal plants and their utilization for the treatment of different diseases.

Key words : Herbal drug, Marketing

How to cite this paper : Desale, M.K. and Bhamare , P.B. (2012). Marketing of some important medicinal plants in Pune city of Maharashtra, *Ann. Pharm. & Pharm. Sci.*, **3** (1) : 30-35.

Article chronicle : Received : 19.03.2012; Revised : 01.04.2012; Accepted : 10.04.2012

INTRODUCTION

Since the time immemorial, useful plants have been handled by human societies for medicinal and other purposes. Pune district of Maharashtra has long tradition of utilization and marketing medicinal plants. Ethnomedicinal plants are used at the household level by women taking care of their families, at the village level by medicine men, tribal Dadaji, Mukhia, Vaida and by the practioners of classical traditional system of medicine such as Ayurveda, unani and siddha. The aim of the present study was to record the indigenous knowledge about medicinal plants and their marketing.

India is well-known for its plant diversity. It sustains a very rich traditional medicinal plants wealth and inherits unique plants and animals. According to the World Health Organization (WHO), as much as 80 per cent of the world population depend on traditional medicines for their primary health needs (Azaizeh *et al.*, 2003). The traditional knowledge is really in scriptless

language. The Healers do not percolate it to others except their direct descendants.

Somehow all stakeholders collect the knowledge of medicinal plants for the treatment of different diseases, their marketing which is very useful for increasing the status of the family economically, socially and by health. There is increase in daily wages of the family by trading important medicinal plants with professionals in the field of pharmaceuticals of Ayurveda and Unani and Siddha. It has been seen that mention of the use of medicinal plant is found in all the four Vedas namely Rigveda, Samveda, Ayurveda, Atharveda. Ayurveda, is a part of Atharveda^{1-9,27}. Herbs are described in Dravya-Guna Vadyan (Herbology). By knowing the importance of trade and marketing of herbs have shaped the economy of nation. The profession of collection of medicinal plants and their marketing have proven to be more effective and inexpensive. Ethnomedicinal surveys throws light on many such areas of conservational cultivation, storing and packaging, marketing and medicinal plant.

Round about Pune city there is specific area of medicinal plants and their marketing. In the ranges of sahyadri important areas are Purandhar, Bhor, Bhimashankar, Parinche and Junnar where from trade of medicinal plants is made location of trading ranges in Pune city are linked with neighbouring states such as Gujarath, Madhya Pradesh, Karnataka, Goa, Andhra-Pradesh

MEMBERS OF THE RESEARCH FORUM

Address for correspondence :

M.K. DESALE, Bharati Vidyapeeth, Deemed University, PUNE (M.S.) INDIA

Coopted auhors :

P.B. BHAMARE, Department of Botany, Jaihind College, DHULE (M.S.) INDIA

and northern states. Pune lies between 18 degree 32 mins North, 73 degree 51 mins East altitude. Its climate is in the range of 15-35°C city sprawn over 13.8 km with 40 per cent greenery.

MATERIALS AND METHODS

Since August 2010 – November 2011 season-wise frequent field visits were organized to the herbal firms of the Pune city. In Pune city there are 36 herbal firms out of these ten herbal firms are selected to study the marketing of some of the important medicinal plants. The local efficient knowledgeable healers gatherers, traditional herbal practioners were identified with Ayurvedic practioners employed in this area in order to understand and collect the information regarding marketing. Linkages, storage methods, places of medicinal plants where from purchased, plant parts used for specific diseases, difficulties faced by suppliers, gatherers, transportation adulteration, if any packaging and labeling of medicinal plants.

Herbal firms have been established in the year 1960 to 2007. Mainly interview schedules and observation schedules were organized. Schedule is created for a definite item of inquiry *i.e.* how medicinal plant is marketed and how it is used to cure certain ailments. Researcher is always there to help the respondents. Response rate is high. Presence of the researcher remove doubts and remove fake replies from the respondent. The medicinal plants gathered and marketed through different linkages are recorded. It is observed from personal interview with the firms that through ages all the workers have attained expertise. The medicinal plants are purchased mostly in the month of October, November. There is general opinion about the collection of medicinal plants that after Kojagivi Purnima medicinal plants became saturated with active substances. Local gathers usually keep co-ordinal relationship with the firms.

Important steps in the study of marketing of medicinal plants are as follows:

- The information of plants used for medicinal purpose were collected from herbal firms.
- Carefully planned visits were organized
- Interviews were conducted.
- Information provided by herbal firms was carefully recorded in a designed schedule.
- Ayurvedic formulation, adulteration was also consciously recorded.
- Storage, packaging, transportation of medicinal plants were recorded.
- Verification of formulation, biochemical importance were verified with pharmaceutical organization and with the help of Ayurvedic practioners and recorded.
- Confirmation and marketing of specific medicinal plants was made with the help of floristic liter.
- The prices per kg were recorded
- Data collected is kept ready for further analysis.

The records about ethnomedicinal plants and their marketing is presented in Table 1, 2, 3 and 4.

The preparatory stage of packing of MP leads for better trading of MP. The personnel employed in the herbal firms have gained expert-ship. Herbal dealers store the MP according to specialized classification as.

- Under ground part – roots, rhizome, tubers,
- Bark
- Leaves
- Flowers,
- Seeds and fruits,
- Exudates, gum, resin,
- Wood and wood extract
- Wet part
- Panchang
- Whole plant

The herbal firms are also storing the MP material in the form of Quath, Avaleh, Asav, Arista, Syrup, Churna, Ghansatva, Vati, Gutika, Liniments (oil), Kshar, Bhasma, Malham (ointment). Adulteration observed in place of original medicinal plant is also noted. Adulteration form is in the form of churna, kwath material, gutika, syrup material, oil. It is not fair practice as has been predicted by herbal firm. This tendency of adulteration looses reliability of the traders. Firm people confidently added that such adulterated plant materials are timely identified and removed.

The marketability is done through distributor, wholesalers, traditional practioners, retailer, by observing all the fundamentals of marketing, in modern context. Environment country analysis helps to identify and access the national environment. A nations business environment is crucial in determining the success of the business in the country.

Average prices of the medicinal plant from 10 different herbal firm has also been recorded as compared to national average it can be stated that prices fluctuate as per availability. The lowest price of medicinal plant indicate its availability in plenty. It is *Adathoda vasiciaca* (adulsa) and the highest price of medicinal plant indicate it availability is less or it is rare. They are *Holorrhena antidysentrica* (kutaj), *Communphora wightii* (guggul). The marketing area is Gujarath, MP, Keral, Goa, UP, AP.

The observation about profit margin states that it is in the range of 8 per cent - 20 per cent.

RESULTS AND DISCUSSION

As nature is our closest friend and nearest relative, great Saint Tukaram has rightly pointed out the cordial relationship between mankind and nature in his famous Gatha.

Initially communities residing in ranges and hills use traditional medicinal plants for the improvement of the diseases. Plants used for their primary health care found safer. Present investigation revealed that the importance of medicinal plant

Table 1 : Herbal firms interviewed by schedule technique

Sr. No.	Name of the firm of herbal medicines	Location and tear of establishment	Persons involved in firm		
			Total	Male	Female
1	2	3	4	5	6
1.	L.B.Lokhande	Sugandhi chauk, Pune (1960)	25	20	5
2.	Ambadas Vanaushadhi	Tulasibag, Pune (1968)	25	20	5
3.	Mankarnika aushadhalaya	Sadashiv Peth, Pune (1995)	40	30	10
4.	Shricharanamrut	Near Bhave School, Sadashiv Peth, Pune	40	30	10
5.	Lokhande Kasthaushadhi	Sony Murati, Pune (1969)	25	10	15
6.	Sahyadri Aushadhalaya	Budhwar Peth, Pune	25	20	5
7.	Shree shail	Vishrantwadi (2006)	25	20	5
8.	Ayurvedamrut	Shukrawar Peth(2002)	40	20	20
9.	Aprup medicals	Somar Peth, Pune (2000)	28	22	6

Table 2 : Showing the particulars of medicinal plant i.e. collection and marketing**The medicinal plants traded by selected herbal firms are as follows**

Sr. No.	Name of the firm of herbal medicines	Total no. of plant traded
1	2	3
1.	L.B.Lokhande	240
2.	Ambadas Vanaushadhi	260
3.	Mankarnika aushadhalaya	240
4.	Shricharanamrut	190
5.	Lokhande Kasthaushadhi	240
6.	Sahyadri Aushadhalaya	217
7.	Shree shail	194
8.	Ayurvedamrut	160
9.	Aprup medicals	210
10.	Gandhi and sons	190
Total		2141

for curing the disease. Plants used for their primary health care found safer. Present investigation revealed the importance of medicinal plants, their commercial importance and trade. Generally China, Indonesia, Brazil, India, Mexico are engaged in, cultivation conservation, storing and marketing of the medicinal plants. There are 8000 plants with thousand usage out of which in this study of marketing of 36 (26 +10) plants have been recorded in Table 3.

The usage of these plants mainly is to cure skin diseases, Asthma, cardiovascular disease, while discharge urinary and genital diseases, stomach diabetes, Arthritis.

In the present study, it is understood that the dosage are administered by herbal healers. They use different formation like churna, guti, vati, syrup, ghruta, leh etc. Marketing of some important plants is executed by herbal healers. All the herbal healers follow the principles of marketing. Ten firms have employed 301 learned personnel. The observations are recorded by schedule.

Packaging and labeling:

Herbal firms generally follow standard instruction of packaging and labeling of medicinal plants¹⁰⁻³¹.

The general requirements that firm are fulfilling are as follows

- Economical cost
- Impermeable as glass, metal
- Inert material
- Easy manufacturing in wide range.
- Care for deterioration.
- Good production lines efficiency performances, with minimum wastage
- Effective pack, easy to open
- Clean maintenance
- Readily available source of supply.
- Eco-friendly
- Easily transportable

Firms are using different types of eco-friendly packing materials. Waste and unusable material is removed immediately. Quality control measures are implemented to eliminate substandard materials. The medicinal plants which are is constant practice such as, *Withainia somnifera*, *Asparagus racemosus*, *Vitex negundo*, *Solanum xanthocarpum*, *Boerhavia diffusa*, *Holorrhena antidysentrica*, *Terminalia chebula*, *Adathoda vasica*, *Salix alba*, *Commiphora wightii*, *Glycerrhiza glabra*.

Accordingly the personnel, gatherers, farmers involved in this trade is also proportional and trade of MP is thus pressurized. Trade chain of traders, manufactures, consumers is now-a-days very active and profusely developing in many countries. Main concerns of this industry as regards to standards naturally relate to medical efficacy and safety. India has one of the richest traditional medicine culture in the world. India at present exports herbal material and medicine to the tune of Rs.1210 crores annually (2001 -02). USA is the single largest export destination for Indian medicinal plant.

Table 3 : Showing prices of medicinal plants

Sr. No.	Name of the medicinal plant	Marketing area	MP easily available / rare	Price of MP Rs. per kg	MP collection from local / outside
1	2	3	4	5	6
1.	<i>Withania somnifera</i> Dunal [Solanaceae] (Ashwagandha)	Pune, Kerala, Neighbouring districts	EA	165	Local & neighbouring districts
2.	<i>Phyllanthus emblica</i> [Euphorbiaceae] (Awala)	Local, neighbouring districts	EA	113	Local, Gujarat, MP, AP,
3.	<i>Terminalia bellerica</i> [Combrataceae] (Beheda)	state Karnatak, Gujarat,	EA	66	Karnatak, Local, Gujarat
4.	<i>Terminalia chebula</i> [Combrataceae] (Haritaki)	Bhimashankar, Kerala,MP, Karnatak	EA	50	Local, MP, AP
5.	<i>Asparagus racemosus</i> wild [Liliaceae] (Shatawari)	Local, AP,MP	EA	48	Karnatak, Local,
6.	<i>Holorrhena antidysentrica</i> Rbr. [Apocynaceae] (Kutaj)	Goa, Gujarat, Local,	Rare	744	Gujarat, AP, Local
7.	<i>Trychosanthis dioica</i> roxb [Cucurbitaceae] (Patol, Padwal)	local A.P Keral	Rare	51	local vallies
8.	<i>Terminalia arjuna</i> w & A [Combrataceae] (Arjun)	APMP local Keral	EA	61	MP Local Gujrath
9.	<i>Adathoda vasica</i> [Acanthaceae] (Adulsa)	APMP local Keral Karnatak	EA	46	AP Karnatak local
10.	<i>Solanum xanthocarpum</i> Schrd & wedle [Solanaceae] (Ringani)	local Karnatak Gujrath	EA	57	Gujarat, AP, Local Karnatak
11.	<i>Aegle marmelos</i> Linn [Rutaceae] (Bel)	APMP local Keral Karnatak UP	EA	48	Gujarat, AP, Local Karnatak
12.	<i>Salix alba</i> Linn [Siliaceae] (Sahachar)	MP, Goa, Keral	Rare	86	AP,Gujarat, Karnatak,MP
13.	<i>Curcuma zedoria</i> Linn [Zingiberaceae] (Kachora)	Karnatak, Local, Mp,	Rare	55	Goa, Keral, UP, AP,
14.	<i>Plumbago zeylanica</i> Linn [Plumbaginaceae] (Chitrak)	AP,North India,	Rare	56	Goa, MP, Gujarat, Keral, AP
15.	<i>Tinospora cardifolia</i> wilde [Minispermaceae] (Gulwel)	North India, MP, Karnatak	EA	63	Goa, Karnatak, MP, AP
16.	<i>Trachyspermum amni</i> [Apiaceae] (Ajwan)	North India, AP, Goa,	EA	98	AP, UP, MP, Gujarat
17.	<i>Commiphora wightii</i> [Burseraceae] (Guggul)	Gujarat, MP, Keral	Rare	300	Goa, MP,UP,AP, Gujarat
18.	<i>Coriander satium</i> Linn [Umbeliferace] (Dhanyak)	MP,UP,AP	EA	76	All the states
19.	<i>Ricinus communis</i> [Euphorbiaceae] (Erandmul)	Local, Karnatak, Keral	EA	56	All the states
20.	<i>Garuga pinnata</i> Roxb [Berseraceae] (Kakad)	MP, UP, AP	Rare	66	Gujarat, Goa, Keral, Karnatak

Table 3 contd...

Contd.... Table 1

21.	<i>Tribulus terrestris</i> [Zygophyllaceae] (Gokshur)	Local, North India, Goa	EA	107	UP, AP, MP
22.	<i>Vitex negundo</i> L [Verbenaceae] (Nirgudi)	Local, MP, AP	Rare	106	AP, MP, Gujarat
23.	<i>Hemidesmus imbricatus</i> Linn [Asclepiadaceae] (Anatmul, Sarasparila)	AP, Gujarat, MP	Rare	100	AP,MP, Goa, Karnatak
24.	<i>Symplocos racemosa</i> [Symplocaceae] (Lodhra)	Local, Karnatak, Keral	Rare	61	UP, AP, MP, Goa
25.	<i>Bahunia variagata</i> [Caesalpinae] (Punarnava)	Keral, Karnatak, MP	EA	60	UP,AP, MP, Goa
26.	<i>Glycyrrhiza glabra</i> Linn [Papillionaceae] (Jestamadh)	Local, AP,MP, Keral	EA	71	MP,Gujarat, goa, Keral,Local
27.	Dashmul *	Gujarat, Goa,MP, Local	EA	71	All the states
28.	<i>Cedrus deodar</i> [Pinaceae] (Deodar)	North India, Karnatak, MP	Rare	67	North India, AP,MP, Goa
29.	<i>Sterculia urens gulu</i> [Sterculiaceae] (Kadya)	MP,AP, Karnatak, Keral	Rare	80	Local, MP, AP,Gujarat
30.	<i>Achiranthus aspera</i> L [Amaranthaceae] (Aghada)	Local, MP, Goa	EA	47	All the states

Table 4 : Medicinal plants with Laghumul and Bruhatmul

*	Dashmul contains	1-5 laghumul,
1	<i>Desmodium gangeticum</i> ,	
2	<i>Uraria picta</i>	
3	<i>Solanum xanthocarpum</i>	
4	<i>Solanum indicum</i>	
5	<i>Tribulus terrestris</i>	
6	<i>Aegle marmelos</i>	6 -10 bruhatmul
7	<i>Premna integrefolia</i>	
8	<i>Oroxylum indicum</i>	
9	<i>Gmelin arborea</i>	
10	<i>Stereospermum suaveolens</i>	

Conclusion:

There must be a regulatory and advisory body recently National Medicinal Plants Board is mandated to enhance the availability of quality raw material for domestic consumption and exports. It also regulates R&D activities in areas of post harvest management of MP, up till now 35 boards have been started functioning (2008). I join to this welcome policy which will help to all the concerns in the field of MP. Districts like Pune which has profound marketing practices must be promoted for the purpose of marketing, research and development and cultivation.

Acknowledgement:

Authors are grateful to Prof. (Dr.) Shivajirao Kadam Vice-Chancellor, Bharati Vidyapeeth Deemed University, Pune; Principal K. D. Jadhav, Yashwantrao Mohite College, Pune. Herbal firms of Medicinal plants and all the stake-holders from Pune city. Dr. Kiran Desale, Dr. Sameer Jamdangi who really helped in the collection of the data and verification of the information are also thankful to the tribals. Knowledge providers for sharing the valuable information.

REFERENCES

1. **Agnivesh** (1968). *Charak samhita* (Volume I-II) (2nd Edn.) Sastu Sahitya Vardhak karyala, Bhadra, Ahmedabad.
2. **Anonymous** (1948-1992). *Wealth of India- Raw Materials*, Vol. I-X. Council for Scientific and Industrial Research, New Delhi, India.
3. **Anonymous** (1974). *Gazetteer of India*, Maharashtra State Gazetteer, 2nd ed, Mumbai: Gazetteer Department.
4. **Anonymous** (2007). *Internat. J. Green Pharmacy*, **2** (2) : 76 - 78.
5. **Bentham, G. and Hooker, J.D.** (1862-83). *Genera plantarum*. Vols. 1 – 3, London : Williams and Norgate; 1862 – 1883.
6. **Chopra, R.N., Nayar, S.L. and Chopra, I.C.** (19690). *Glossary of Indian medicinal plants*. Publication and Information Directorate, CSIR, NEW DELHI (India).

7. **Chopra, A.K. Khanna, DR., Prasad, G., Malik, D.S., Bhutani, R.** (2003). Medicinal plants: conservation, cultivation and utilization.
8. **Gadgil Madav and Vartak, V.D.** *Sacred groves of Maharashtra : An Inventory*
9. **Gagunathan, K. and Mitra, R.** (comp. and ed. by) (1999). *Pharmacognosy of indigenous drugs* (Volumes I- II) (Reprint). Central Council for Research in Ayurveda and Siddha, NEW DELHI, INDIA.
10. **Ghate, V.S.** (2005). Pune Parisaratil Durmil Vruksh (Rare trees of Pune) Centre for Environment education, PUNE (M.S.) INDIA.
11. **Ghate, V.S., Sane, H. and Ranade, S.S.** (Eds.) (2004). Focus on sacred groves and ethnobotany (Proceedings of the National Seminar on Ethnobotany and Sacred Groves: Role in Conservation Strategy for India) along with original papers by Dr. V. D. Vartak, Prism Publications, MUMBAI (M.S.) INDIA 2004.
12. **Hooker, J.D.** (1882-97). *The Flora of British India*, Vol. 1 -6, London : Reev and Co; 1872- 1897.
13. **Iqbal Hussain** (2001). *Marketing of medicinal plant.*
14. **Jain, S.K.** (1995). *Manual of ethnobotany*, Scientific Publishers, Jodhpur.
15. **Jain, S.K.** (1991). *Dictionary of Indian Folk Medicine and Ethnobotany*. Deep Publications, NEW DELHI, INDIA.
16. *J. Ethnopharmacol.*, **125** : 234 – 245, September 2009.
17. **Joy, PP. and others** (1999). *Medicinal plants*, Kerala, Agriculture University.
18. **Kirtikar, K.R. and Basu, B.D.** (1993). *Indian medicinal plants*, 2 nd ed, Vol. 1 – 4, LM Basu Pess, Allhabad (U.P.) INDIA.
19. **Nagarkar, S. and Ghate, VS.** (2004). Ethnobotanical and commercial utilization of medicinal plant resources from Taluka Junnar, District Pune. In : *Focus on sacred groves and ethnobotany* (Edt. V.S. Ghate et al.) pp. 202-207.
20. **Nambiar, P.K., Rammurthy, V.P.K.** (2002). *Indian medicinal plant.*
21. **Parabia, M.H. and Pathak, S.S.**(2002). Apni Vanushadhi. Manav Vikas Sansthan, Piplod, Surat (GUJARAT) INDIA.
22. **Patil, D.A.** (2003). *Flora of Dhule and Nandurbar District*, Maharashtra. Bishen Singh Mahendra Pal Singh, DEHRADUN, India.
23. **Pawar, S. and Patil, DA.** (2007). Certain unconventional food plants of Jalgaon district (MS). *J. Non- Timber Products*, **7**:229-32.
24. **Rajput, A.P. and Yadav, S.S.** (1998). Medico-botanical and Phytochemical studies on medicinal plants of Dhule and Nandurbar Districts of Maharashtra State. *J. Phytol. Res.*, **13**(2) : 161.
25. **Shisode, S.B. and Patil, D.A.** (1993). Native medicinal plants of Jalgaon District (MS). *Bio. J.*, **5** : 79 – 82.
26. **Singh, V.S. and Pandey** (2000). *Ethno botany of Rajasthan.*
27. **Sivrajan, V.V. and Balachandran, I.** (1994). Ayurvedic drugs and their plant sources. Oxford and Publishing Co., NEW DELHI INDIA.
28. **Theodore, C.** (1903). *Flora of The Presidency of Bombay*, Vol. 1 – 3, Calcutta: BSI : 1903.
29. Vartak, V.D. Observations on rare, imperfectly known and endemic plants in the sacred groves of Western Maharashtra.
30. **Yadav, S.S. and Patil, S.H.** (2001). Traditional medicines and healthcare system of tribals of Satpura region, Maharashtra State. *Plant Archives*, **1** (1&2) : 111-118.
31. **Yadav, S.S. and Bhamre, P.B.** (1989). Ethnomedico-Botanical studies of Dhule forests in Maharashtra State. *J. Econ. Tax. Bot.*, **13**(2) : 455-460.

