

Herbal Medicine Major Role in Women's Health: An Overview

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Abstract

This is a perspective review of medicinal plants useful traditionally for women's healthcare in India and countries like India. Medicinal plants have a significant role in women's healthcare in many rural areas, Plants with therapeutic efficacious observations have historically been used as a starting point in the development of new drugs, and modern pharmaceuticals have been derived from them. A review about the therapeutic effectiveness, safety and best use of herbals in day to day practice to get rid of many diseases, added value, make use of herbals in this context. Kitchen remedies are the easy access for women for their cost effective health care. Many of the dietary health practices by women reflect their health consciousness. Herbal remedies include medicinal herbs and ayurveda herbal remedies for common disorders among women urinary tract infection, pubertal changes, post menopausal syndrome, hot flashes, menopause, poly cystic ovarian syndrome, bacterial vaginosis, yeast infections, fertility, for inducing labor, for pregnancy, for increasing breast milk production, for abortion and other female disorders and to improve their health and wellness.

Keywords

Medicinal Plants, Menopausal Syndrome, Herbal Remedies, Fertility, Bacterial Vaginosis

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1. Introduction

Women play an important role in the society as well as in the total life scenario in the earth. Despite obvious differences between women and men—biologically, psychologically, and socially—the concept of viewing the totality of women's health as different from men's health arose in Western medicine only in the last two decades of the twentieth century. Only health care providers who specialized in areas related to reproduction were expected to be knowledgeable about issues particular to women. Women from rural sector or from modern society rely on herbals for their health care and beauty care as well.^[1] Herbal remedies for women include medicinal herbs and Ayurveda herbal remedies for problems like Urinary tract infection, Pubertal changes, Post menopausal syndrome, Hot flashes, Menopause, Poly cystic ovarian syndrome, bacterial vaginosis, yeast infections,

fertility, for inducing labor, for pregnancy, for increasing breast milk production, for abortion and other female disorders and to improve their health and wellness. Women have handed down information from mother to daughter on how herbs can remedy some of the common maladies of life. Women, like the moon, change in cycles. Through menarche (the first menses), menstrual cycles,^[2] pregnancy, nursing, and menopause, herbs have been a common denominator for the wise woman and those she comforts. Medicinal plants are sometimes referred to as being phytoestrogenic or phytoprogestronic. This is because some plants have molecular structures similar to the hormones estrogen (phytoestrogenic) and progesterone (phytoprogestronic). They can occupy the receptor sites in the body that would normally be taken up by these hormones. Herbs are beautiful

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allies for women to use throughout their lives. Medicinal plants, because of its high values and least side effects, used by women around the globe found increasing and the practice seems quite encouraging as it revert back to the olden history where herbs and its usage found interesting episodes. The cost and availability of herbals & its utilization resources transferred from one generation and other keeps the information alive and useful to all. Since women playing a multirole & facing variety of the problems special health care is needed. Medical care becoming costly and much painful and the affordability will be question for the poor. So there is a great demand among the women with the usage of medicinal plants both in rural & urban sectors too. They are nourishing, comforting, and time-tested for thousands of years by millions of women.^[3]

1.1. Women Health Care

a) *Worldscenario*^[4]

Around the globe, women at all ages suffering with variety of diseases & health issues. Stress and Poor health care, malnutrition and many aspects will worsen the health. Medicinal plants and its role taking care of such issues. In order to understand the modern definition of women's health, it is important to understand women's health care viewed by the medical and medical research establishments. Traditionally, the health of women has been seen as synonymous with maternal or reproductive health. Clearly, the Western medical profession's view of women's health as maternal health was concordant with societal mores that valued women mainly for their ability to bear children. Childbirth and sexually transmitted diseases, cervical cancer have been the most important health issues for women in all ages and places.

(b) *Indiancontext*^[5]

Due to the unpleasant risks and side effects of long-term pharmaceutical treatment for women's health conditions, specifically menstruation and menopause, women's healthcare and the search for alternative treatment options have become an important focus of global scientific research. The women are getting more stress and lack of self care and poor nourishment leads to cause anemia and other malnutritional symptoms. Women's socialization to tolerate suffering and their reluctance to be examined by male personnel are additional constraints in their getting adequate health care as per the Indian scenario. The pollution and industrial wastes on health again badly reflects on metabolism and leads to health problems in women. In addition the smoke from household biomass having serious impact includes eye problems, respiratory problems, chronic bronchitis and lung cancer among the women as the exposure

time is more in our social setup. It may lead to aneemia those susceptible to carbon monoxide toxicity. Mortality, smoking, chewing tobacco and alcohol use were four separate binary outcomes in the analysis in Indian scenario. Smoking, drinking alcohol, and chewing tobacco also show graded associations with socioeconomic status within indigenous groups. Socioeconomic status differentials substantially account for the health inequalities between indigenous and non-indigenous groups in India. However, a strong socioeconomic gradient in health is also evident within indigenous populations, reiterating the overall importance of socioeconomic status for reducing population-level health disparities, regardless of indignity.

1.2. Women Health Care in India

Women's health can be seriously affected by many factors like stress, emotional, physical and so on. The major problems are menstrual irregularities, mental health, and malnutrition status like Anaemia. The effective intake of herbals may leads to better results in this regard. Women from occupational sector suffer from stress, reluctance about their food habits, more prone to ill effects in their health. As women shoulder all responsibilities in home and society to build the nation strong so adequate care must be provided to handle the problems of women.^[6]

The practice of traditional medicine is widespread in China, India, Japan, Pakistan, Sri Lanka and Thailand. In China about 40% of the total medicinal consumption is attributed to traditional tribal medicines. In Japan, herbal medicinal preparations are more in demand than mainstream pharmaceutical products.^[7]

The modern field of women's health includes the study of illnesses and conditions that are unique to women, more common or serious in women, have distinct causes or manifestations in women, or have different outcomes or treatments in women. Since the 1980s, research on gender differences in health and disease has had important implications for the treatment and prevention of a variety of common serious illnesses, including heart disease, stroke, lung cancer, depression, colon cancer, and dementia. Research in all these areas is ongoing. A greater understanding of the factors influencing women's health from a biological perspective has been paralleled by a greater understanding of the psychosocial and societal factors that affect women's health status. Differences in employment patterns also result in fewer women being medically insured than men, strongly affecting access to health care and health status.

The field of women's health seeks to promote an understanding of the biological and psychosocial factor

affecting women's health, and to integrate this understanding into public health initiatives, including training of health care providers. Recognition by the medical research establishment of the need to study health and disease in women as well as men has been essential to this new paradigm. Despite the strong influence of biological factors, psychosocial issues still remain the single most important determinant of health status for many women.

The importance of herbals in traditional healthcare practices, providing clues to new areas of research and in biodiversity conservation is now well recognized. However, information on the uses for plants for medicine is lacking from many interior areas. Implication of developmental activities and changing socio-economic conditions on the traditional knowledge.

1.3. Role of Herbals in Women Health Care

Among the women population the major percentage suffers with Aneamia and related issues. Women have unique health concerns, and Botanic Choice has natural solutions. Nature's medicine chest provides the support you need for strong bones, bladder health, hormone balance and heart health.

1.4. Gastro-Intestinal Ailments

Although women may experience heartburn, they generally have less damage in their esophagus than men. Because women are more sensitive to irritants, they may experience heartburn more strongly than men. The common gastric disorders of women are: Nausea, Gastritis, Gallstones, Irritable Bowel Syndrome (IBS), Colonic disorders.

1.5. Gynaecological Problems ^[8]

Gynaecological problems are abnormal uterine bleeding and Endometrial Ablation. Endometrial ablation is a form of minimally invasive procedure in the treatment of heavy menstrual bleeding. Endometriosis is a gynaecological problems. It is affects women usually between the ages of 30 - 45 years old. Many problem produce endometriosis such as, Heavy and sometimes irregular periods also gynaecological problems. Uterine fibroids are muscle swellings that are found in the womb. Fibroids are very common in women. They commonly found in women between the ages of 35 - 45 years old.

Osteoporosis is the commonest long term complication of the menopause. Severe cases of Osteoporosis can result in spinal problems and a decrease in height or in hip fractures with minimal trauma. The instance of coronary heart disease and strokes is much lower in women before the age of the menopause. Wild yam root (*Dioscorea villosa*) is a member of the Dioscoreaceae family. Wild yam improves liver and kidney function and can lessen dysmenorrhea and ovarian

pain. It is anti-inflammatory, antispasmodic, diuretic, and nutritive, and a cholagogue (improves liver function). Wild yam contains diosgenin, which is a precursor to progesterone and was once used to make birth control pills. Today wild yam, valued as an herb, is useful for dysmenorrhea, infertility, menopause, menstrual cramps, ovarian pain, and threatened miscarriage. Soy products, which are eaten widely in the Far East, are hypothesized to play a role in this region's lower rates of cancers and heart disease and menopausal symptoms. Soy products such as beans, tempeh, tofu, soy milk, and miso contain isoflavones, an antioxidant which can reduce hot flashes and help inhibit tumor growth and cancer. Plants, namely *Tinospora cordifolia*: leaves as health tonic; *Delonix regia*: flowers for dysmenorrhoea; *Buteamonosperma*: bark used for menorrhagia and leucorrhoea, are found similar to those published in the literature. ^[9] Further scientific assessment of these medicines on phytochemistry, biological activity and clinical studies is however greatly needed. Most commonly useful herbs are: *Andrographis paniculata* Nees, *Abrus precatorius* L. *Butea monosperma* Roxb., *Caesalpinia bonducella* L., *Catharanthus roseus* L, *Celosia argenticia* L *Crotalaria prostrate* Rottl., *Lawsonia innermis* L. *Maytenus senegalensis* Lam. *Mimosudica* L. *Striga densiflora* Benth. *Tinospora cordifolia* Willd. *Tridax procumbens*

The menopause is the time in life when a women stops having periods. ^[10] The periods stop because the ovaries stop producing the normal amounts of oestrogen and progesterone hormones. Hot flushes and night sweats are very common at the time of the menopause. *Cinnamomum verum*, *Pueraria lobata*, *Ruta graveolens*, *Glycine max*, *Dioscorea villosa*, *Cimicifuga racemosa*, *Vitex agnus*, *Angelica sinensis*, *Oenothera biennis*, *Ginkgo biloba*, *Trifolium pretense*, *Agrimonia pilosa hedebe*, *Ailanthus altissima* (Mill) swingle are commonly employed in the treatment of gynaecological conditions.

A lack of fertility or concerns about a lack of fertility is something that worries a larger number of couples. It has been shown that if a couple are having regular unprotected sexual intercourse, then there is an 80% chance of conception after 12 months and a 90% chance of conception after 18 months.

There are three main causes of infertility. A woman needs to produce eggs regularly and at the right time of her menstrual cycle, the man needs to produce sperm of the right quality and quantity, and the two need to be able to meet and therefore the women's fallopian tubes need to be open and undamaged.

About 25% of infertility is due to a lack of eggs, about 25% is due to a problem with the sperm, about 25% is due to tubal

problems and in the final 25% the reason for infertility is never discovered.

Numerous studies have documented that health care consumers all over the world are spending money out of pocket for alternative therapies and that billions of dollars are spent in the United States alone. Women use conventional health care services more frequently than men; thus, it is not surprising that women account for approximately two thirds of health care appointments for complementary and alternative therapies. The traditional conceptual frameworks of herbal medicine, homeopathy, acupuncture, and acupressure are presented, and common clinical applications to women's reproductive care are discussed.

Ethnobotanical data collection to select pharmacologically active species was carried out within a clearly defined therapeutic context: those plants used during the course of a woman's reproductive life. Various concepts, behaviours and practices relating to menstruation, pregnancy, birth and birth control were examined in detail from an ethno pharmacological point of view. A list of selected species of particular interest is proposed for further study. Symptoms associated with menopause can greatly affect the quality of life for women. Botanical dietary supplements have been viewed by the public as safe and effective despite a lack of evidence. Taken together, these data indicate a need to reprioritize the order in which the bioassays are performed for maximal efficiency of programs involving bioassay-guided fractionation. In addition, possible explanations for the conflicts in the literature over the estrogenicity of *Cimicifuga racemosa* (Black cohosh).

Despite widespread use there has been surprisingly little research into the outcomes or the potential risks of using herbal therapies during pregnancy. Similarly phytoestrogens have become one of the fashionable areas of herbal treatment, although with remarkably little evidence of benefit. Studies have been carried out to assess their effectiveness in cardiovascular disease and osteoporosis but not their effect on irregularities of menstruation. Current herbal treatment in this area comes from traditional use, laboratory work and a lack of adequate clinical trials make it impossible to suggest which remedies may be of benefit.

Estrogen replacement therapy is one of the most commonly prescribed medicines in the United States by traditional medical professionals.^[11] Over the past decade, the market for complementary/ alternative therapies for hormone replacement has dramatically increased. Women are seeking more "natural" alternatives to treat menopausal symptoms. Several popular herbal therapies for menopausal symptoms including phytoestrogens, black cohosh (*Cimicifuga racemosa*), dong quai (*Angelica sinensis*), chast tree (*Vitex*

agnus-castus), and wild Mexican yam.^[12]

Women approaching the menopause frequently resort to complementary therapies and natural remedies, especially herbal medicines. Nurses working with mature women, both in the community and in hospital, may find themselves drawn into a debate about these remedies, yet may feel unable to answer women's questions, or be unsure where to find information. However, with the increased use of complementary therapies generally, it is imperative that nurses recognize the parameters of their personal practice and appreciate the possible problems which may arise from ill-informed use of natural remedies, such as herb-drug interactions. This article provides an overview of herbal remedies popularly self-administered by women in the perimenopausal period. The effects and safety of several remedies are explored to facilitate nurses to offer accurate, comprehensive and evidence-based information to patients. The issue of integration of herbal medicine into mainstream management of menopausal symptoms is also debated as a means of providing optimum and safe care to women at this time.

1.6. General Tonic

Medicinal plants as General tonic: *Medicago sativa*, *Andrographis paniculata*, *Chicorium intybus*, *Morinda citrifolia*, *Olea europea*, *Panax quinquefolius*, *Zingiber officinale*. Moderate malnutrition continues to affect 46% of children under five years of age and 47% of rural women in India. Women's lack of empowerment is believed to be an important factor in the persistent prevalence of malnutrition. In India, women's empowerment often varies by community, with tribes sometimes being the most progressive. In addition to the known investments needed to reduce malnutrition, improving women's nutrition, promoting gender equality, empowering women, and ending violence against women could further reduce the prevalence of malnutrition in this segment of the Indian population.^[13]

1.7. Headache

Plants useful in Headache; ^[14] *Tumera diffusa*, *Ilex pararensis*. A number of clinical reports have revealed an association between the use of alcohol and drugs and the onset or exacerbation of headaches. The following characteristics were noted in the 236 respondents: 1) Over 89% reported having experienced some type of headache. 2) Headache-free individuals were significantly older than headache sufferers. 3) Women were much more likely to have migraine headaches than men. 4) Onset of migraines occurred prior to onset of substance use, while onset of tension headaches occurred after onset of substance use. Although associational data must be interpreted with caution, an intriguing hypothesis compatible

with the finding is that migraines may play a role in the genesis of substance use, while substance use may play a role in the genesis of tension headaches.

1.8. Fever, Cough and Cold

Medicinal plants are the inexpensive drugs for all categories of people in the world, and because of its less serious side effects than caused by the synthetic ones. Plants useful in Fever, cough and cold: *Arnica Montana*, *Berberis vulgaris*, *Bupleurum falcatum*, *Eucalyptus globules*, *Hibiscus sabdariffa*, *Hyssopus officinalis*, *Datura stromonium*, *Althea officinalis*, *Urginia maritime*, *Rumex crispus*, *Eriodictyon californicum*, *Astragalus membarneceous*, *Trogonellafoenum-graecum*, *Tanacetum parthenium*, *Glycyrriza glabra*, *Verbascum densiflorum*, *Agastache rugosa gynae*, *Baphicacanthus cusia (Nees) Bremek.*

1.9. Cancer [15]

About one out of every 4-60 women will develop ovarian cancer in their lifetime. It has been noted that the more children a woman has, the lower her risk for ovarian cancer. Breast cancer is the most common form of cancer in women. It is the major cause of death from cancer for women aged between 30 and 60 years. Men can also suffer from breast cancer but compared with women it is a rare occurrence with an incidence rate of about 1% compared with the rate in women. Cervical cancer is one of the most common cancers affecting women. It occurs in the cervix which is the lower part of the womb protruding into the vagina. Cervical cancer is divided into two stages; early or pre-invasive stage, and the late or invasive stage. Women who have had several pregnancies or several sexual partners seem more at risk to cervical cancer. There are indications that cervical cancer maybe caused by a virus, the Wart Virus.

1.10. Medicinal Plants Useful in Cancer

- *Momordica charantia*, *Tricosanthes kirilowii*, *Codonopsis pilosula*, *Vitis vinifera*, *Camelia sinensis*, *Lavendula angustifolia*, *Podophyllum peltatum*, *Viscus album*
- *Pinus pinaster*, *Rosmarinus officinalis*, *Ganoderma lucidum*, *Scutellaria species*, *Glycinemax*, *Thuja occidentalis*, *Withania somnifera*, *Allium sativum*, *Panax ginseng*.

Since 1986, over 40,000 plant samples have been screened, but thus far only five chemicals showing significant activity against AIDS have been isolated. Three are currently in preclinical development. Before being considered for clinical trials in humans, these agents must show tolerable levels of toxicity in several animal models. For AIDS, three agents are presently in preclinical or early clinical development.

2. Occupational Health Problems of Women; Herbal Remedy

Occupational health problems occur at work or because of the kind of work you do. These problems can include Cuts, broken bones, sprains and strains, or amputations, Repetitive motion disorders, Hearing problems caused by exposure to noise, Vision problems or even blindness, Illness caused by breathing, touching or ingesting unsafe substances, Illness caused by exposure to radiation, Exposure to germs in healthcare settings. Good job safety and prevention practices can reduce your risk of these problems. Try to stay fit, reduce stress, set up your work area properly, and use the right equipment and gear.

Only a small proportion of exposed workers develop occupational asthma.^[16] Workers most likely to develop the disease are those with a personal or family history of allergies or asthma and frequent exposure to highly sensitizing substances. But the disease also can develop in persons with no known allergies. Occupational asthma may be suspected whenever a worker begins to develop respiratory symptoms. It may take several years to develop. A thorough physical examination and medical history for a worker with asthma symptoms should include a detailed listing of his or her work history and workplace conditions.

As women move beyond their traditional occupations, they meet new health hazards which may either replace or add to their existing occupational exposure. Women's labour force participation rates have increased steadily, and not only in the industrialized countries. The dramatic economic successes of the newly industrialized states of Asia, for example, are substantially a reflection of increasing feminization of labor in this region. In these economies, female workforce participation rates increased far more rapidly than male from the 1960s, although their jobs were largely less-skilled and poorly paid. Women workers formed the largest pool of workers in export-oriented light industries, such as electronics and textiles, which underpinned economic expansion.

The major reason it is necessary to develop specific tools for research into women's occupational health problems is that the labour force is still very much divided by sex, so women and men do very different work and are exposed to different risks. In order for men and women to be evenly distributed across the job market, about three quarters of women would have to change jobs. A recent study of workers in North Carolina, U.S.A., puts this figure at 76 per cent, even higher than that for racial segregation: 55 per cent. Despite considerable progress in integrating women into the labour force, women are still found in jobs where employment

conditions are relatively unfavourable. This sexual division of labor affects

Women's health in at least six ways:

- Women's jobs have specific characteristics (repetition, monotony, static effort, multiple simultaneous responsibilities) which may lead over time to changes in physical and mental health;
- Spaces, equipment and schedules designed in relation to the average male body and lifestyle may cause problems for women;
- Occupational segregation may result in health risks for women and men by causing task fragmentation, thereby increasing repetition and monotony;
- Sex-based job assignment may be vaunted as protecting the health of both sexes and thus distract from more effective occupational health promotion practices;
- Discrimination against women is stressful in and of itself and may affect mental health;
- Part-time workers are excluded from many health-promoting benefits such as adequate sick leave and maternity leave.

Recent years have seen an increase in the number of women in the labor force and public health practitioners, workers and scientists are starting to include women's concerns in their occupational health activities

3. Commercial Impact of Women Health Care Products in Indian Economy

Health inequities, "the avoidable inequalities in health between groups of people within countries and between countries", are shaped by the social and economic conditions of people's lives. In 2002 the World Health Organization (WHO) released the Madrid Statement, saying: *to achieve the highest standard of health, health policies have to recognize that women and men, owing to their biological differences and their gender roles, have different needs, obstacles and opportunities.*"

Consistent with this, the Government's approach to developing the National Women's Health Policy will be based on a principle of gender equity. To achieve gender equity in health, both women and men need health policies that target their specific or unique needs.^[17]

4. Discussion

Medicinal plants are the inexpensive drugs for all categories

of people in the world, and because of its less serious side effects than caused by the synthetic ones. The effects on health of women's multiple roles are still poorly understood. Longitudinal studies could be valuable here too in disentangling the impact of different roles and responsibilities at different stages of the life-cycle. If much of the current literature on women and paid work, especially which concerned with mental health, is ambiguous or contradictory, it frequently reflects inadequate research design and an unjustifiable level of generalization about women's lives. Medicinal plants are sometimes referred to as being phytoestrogenic or phytoprogesteric. This is because some plants have molecular structures similar to the hormones estrogen (phytoestrogenic) and progesterone (phytoprogesteric). They can occupy the receptor sites in the body that would normally be taken up by these hormones. Recent years have seen an increase in the number of women in the labour force and public health practitioners, workers and scientists are starting to include women's concerns in their occupational health activities. The occupational health of women in sex work varies with the meanings, customs and contexts of sex work in their local area.

References

- [1] Beal MW. Women's use of complementary and alternative therapies in reproductive health care. *J Nurse Midwifery*. 1998 May-Jun; 43(3):224-34.
- [2] Bourdy G, Walter A. Maternity and medicinal plants in Vanuatu. I. The cycle of reproduction. *J Ethnopharmacol*. 1992 Oct; 37(3):179-96.
- [3] Overk CR, Yao P, Chen S, Deng S, Imai A, Main M, Schinkovitz A, Farnsworth NR, Pauli GF, Bolton JL. High-content screening and mechanism-based evaluation of estrogenic botanical extracts. *Comb Chem High Throughput Screen*. 2008; 11: 283-293.
- [4] World Health Organization. 2008. Commission on the Social Determinant of Health, Key Concepts. Geneva: WHO - Ref 35.
- [5] Subramanian SV, Davey Smith G, Subramanyam M. Indigenous health and socioeconomic status in India. *PLoS Med*. 2006 Oct; 3(10):e421.
- [6] Sethuraman K, Lansdown R, Sullivan K: Women's empowerment and domestic violence: the role of sociocultural determinants in maternal and child under nutrition in tribal and rural communities in South India. *Food Nutr Bull* 2006, 27:128-43.
- [7] Lim Lin Lean, "The Feminization of Labour in the Asia-Pacific Rim Countries: From Contributing to Economic Dynamism to Bearing the Brunt of Structural Adjustments", in Naohiro Ogawa, G. W. Jones and J.G. Williamson (eds), *Human Resources in Development along the Asia-Pacific Rim* (Singapore: Oxford University Press, 1993) Tables 6.2-6.3, pp. 177-181.
- [8] Pinn G, Herbs used in obstetrics and gynaecology. *Aust Fam Physician* 2001 Apr; 30(4):351-4, 356.

- [9] Vidyasagar GM, Prashantkumar P. Traditional herbal remedies for gynecological disorders in women of Bidar district, Karnataka, India. *Fitoterapia*. 2007 Jan;78(1):48-51. Epub 2006 Sep 23.
- [10] Brian J. Doyle, Jonna Frasor, Lauren E. Bellows, Tracie D. Locklear, Alice Perez, Jorge Gomez- Laurito, and Gail. B. Mahady, Estrogenic effects of herbal medicines from Costa Rica used for the management of menopausal symptoms *Menopause*. 2009 Jul-Aug; 16(4): 748–755.
- [11] Russell L, Hicks GS, Low AK, Shepherd JM, Brown CA. Phytoestrogens: a viable option? *Am J Med Sci*. 2002 Oct; 324(4):185-8. Review.
- [12] Tiran D. Integrated healthcare: herbal remedies for menopausal symptoms. *Br J Nurs*. 2006 Jun 22-Jul 12; 15(12):645-8. Review.
- [13] Uniyal SK, Singh KN, Jamwal P, Lal B. Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya. *J Ethnobiol Ethnomed*. 2006 Mar 20; 2:14.
- [14] El-Mallakh RS, Kranzler HR, Kamanitz JR. Headaches and psychoactive substance use. *Headache* 1991b;31: 584-7.
- [15] Desai AG, Qazi GN, Ganju RK, El-Tamer M, Singh J, Saxena AK, Bedi YS, Taneja SC, Bhat HK. Medicinal plants and cancer chemoprevention. *Curr Drug Metab*. 2008 Sep;9(7):581-91.
- [16] Occupational asthma. Tips to remember. American Academy of Allergy, Asthma & Immunology. <http://www.aaaai.org/conditions-and-treatments/library/at-a-glance/occupational-asthma.aspx>. Accessed Nov. 14, 2013.
- [17] W Douglas Evans, How social marketing works in health care *BMJ*. 2006 May 20; 332(7551): 1207–1210.