



*Journal of Advances in
Science and Technology*

*Vol. V, Issue No. X, August-
2013, ISSN 2230-9659*

**INDIGENOUS KNOWLEDGE OF LOCALLY
AVAILABLE PLANTS AS HEALTH SUPPORT
SYSTEM BY THE PEOPLE OF CH. DADRI
DISTRICT BHIWANI (HR)**

Indigenous Knowledge of Locally Available Plants as Health Support System by the People of CH. Dadri District Bhiwani (HR)

Ved Parkash¹ Dr. Jagvinder Sangwan²

¹Asst. Professor of Botany & Research Scholar Singhania University, Pacheri berry, Rajasthan

²Associate Professor of Botany (Retd.) Govt. College Bhiwani

Abstract – The traditional sources of food, medicine, clothing, fuel, constructional and industrial materials are very important in life of people. In fact, all over the world, people are looking back at alternative to artificial and highly processed goods, that are natural, safe, affordable and readily available. People of Ch. Dadri are using locally available plants for their general health management and prevention of diseases. A survey was conducted to analyses the knowledge of people of tehsil ch. Dadri of district Bhiwani (hr) about the use of locally available plants for their health management practices. It was found that people of this area use 11 plant species belonging to 9 families. It was concluded that they have acquired this knowledge since generations. This knowledge require further research so that people can get better health at a cost effective manner.

INTRODUCTION

The traditional sources of food, medicine, clothing, fuel, constructional and industrial materials are very important in life of people. In fact, all over the world, people are looking back at alternative to artificial and highly processed goods, that are natural, safe, affordable and readily available, thus reopening the doors to traditional and ethnic science, the Ethno botany. Perhaps, as early Neanderthal man, plants are believed to have healing powers. The earliest recorded uses are found in Babylon circa 1770 BC in Eode of Hammurabi and ancient Egypt circa 1550 BC.

Health management involves the process and means of managing good health and fitness level in cost effective manner. Our body has evolved a self-ability to heal, protect and restore itself by its own physiological mechanisms. However, the external medication is a useful support system for fitness .In many animals including monkeys and chimpanzees, eating of wild plants appear to be health beneficial in one or other ways.

The concept of the "health field," as distinct from medical care, emerged from the Lalonde report from Canada. The report identified three interdependent fields as key determinants of an individual's health. These are:

Lifestyle: the aggregation of personal decisions (i.e., over which the individual has control) that can be said to contribute to, or cause, illness or death;

Environmental: all matters related to health external to the human body and over which the individual has little or no control;

Biomedical: all aspects of health, physical and mental, developed within the human body as influenced by genetic make-up.

The maintenance and promotion of health is achieved through different combination of physical, mental, and social well-being, together sometimes referred to as the "health triangle." The WHO's 1986 Ottawa Charter for Health Promotion further stated that health is not just a state, but also "a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities."

Indian population, specially the rural one use a variety of plants as components of their diet since generations back. They fulfill their nutritional requirements from these plants. People of district Bhiwani take a variety of locally available plants in their food. The practice is transmitted through generations. The present generations still use these vegetation's as a cost effective food and for taste without having or little specific knowledge of the associated health benefits. The people of this particular region have maintained the local flora as a strategy of conservation as well as for their health benefits. Good food plays an important role in prevention of illness such as malnutrition, anemia and other deficiency diseases. The use of medicinal plants by local people may account for 70% or more

Ved Parkash¹ Dr. Jagvinder Sangwan²

of basic healthcare treatment in Africa (world conservation monitoring Centre, 1992). In India also majority of people take variety of plants in food for various reasons. Traditional herbs are native to the region or have traditionally cultivated, usually taken raw or boiled and used for treating mild symptoms. The dried form of herbs are also available on specialized shopkeepers commonly called 'Pansaris'.

In modern sense, there seems a little scientific basis of claims of ethno medicines; however, use of particular plant for same purpose in several societies and regions has been taken as a criterion for credibility (Saklani 1992, Jain of saklani 1992). Various factors influencing the credibility of ethno medicine for a particular disease include prevalence of the disease, the occurrence of the plant in that region, the effectiveness of plant used singly or in combination and the number of people reporting its use for that particular disease.

METHODOLOGY:-

In the present paper, a survey was conducted in villages of tehsil Ch.Dadri district Bhiwani through personal interviews. The respondents were selected at random. There were 50 informants between the age group of 40-60. The informants were selected on random from villages of tehsil Ch.Dadri. The villages include Jaishree, Kamod, Rawadhi, Samaspur, Dudhwa, Charkhi and Achinatal. They were questioned regarding the components of their diet, the names of the plant and plant part consumed, the ways of preparations, and their general health benefits. The data collected for each plant consisted of the local name, the part of plant used, ways of preparations, significance of using the particular plant part, source of their information, health benefits etc. The plants named by informants were actually observed in fields when field survey was made along with the informants. The data so collected was analyzed and some conclusions were drawn.

The present study is limited to older people above the age of 40-50 years of tehsil Charkhi Dadri District Bhiwani(HR) as the herbs are an important component of self-health management of older adults.

ABOUT THE LOCATION OF STUDY AREA

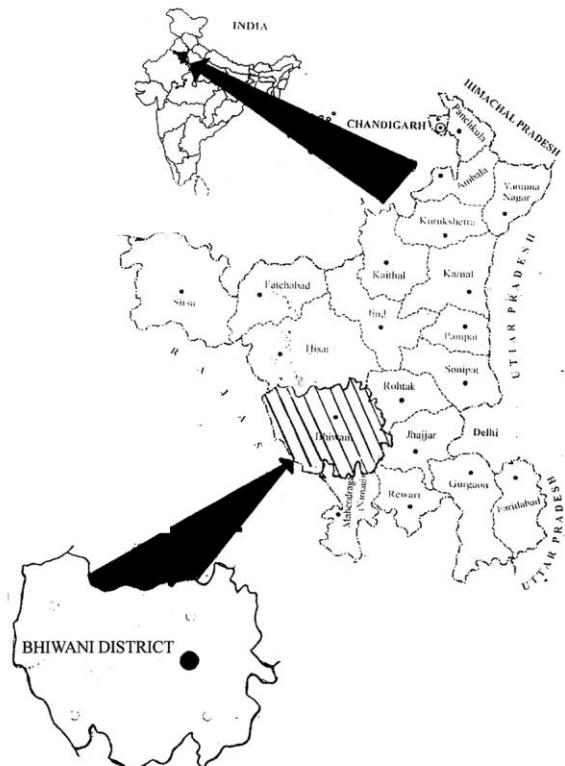
Bhiwani District came into existence on July 22nd, 1972 and is named after the Administrative city Bhiwani. The District Headquarters is situated in Bhiwani Town. Bhiwani district was carved out of Hissar district.

Bhiwani District is situated between 28° 19' deg. & 29° 05' deg. North Latitude and 75° 26' deg. and 76° 28' deg. longitude. District Bhiwani has an area of 4778 square kilometres & its total population 1425022. Bhiwani has 4th Rank in population & 2nd Rank in terms of area in Haryana. Various towns in district Bhiwani are Charkhi Dadri, Loharu, Bawani Khera,

Tosham & Siwani. It bounded by districts of Jhunjhunu of Rajasthan in the west, Hissar District of Haryana in the North & M. Garh District of Haryana in the south & Jhajjar & Rohtak Districts of Haryana in East.

The Bhiwani District is located at distance of 235km South West from capital of Haryana (Chandigarh) & 125km North west from capital of India (Delhi) & 85km North East from Pilani & 256km North East from Jaipur (capital of Rajasthan). District Bhiwani is the representative of semi desert part of Haryana. Bhiwani is one of the important District of Haryana if viewed from a Political angle Bhiwani town was one of the prime centres of Harappan Culture. The area has been associated with ancient vedic tribes such as Bharatas, Purus, Kurus, Mujavatas Mahavrishas. During medieval times, it went through upheavals and conquests and gained importance for strategic location with regard to Delhi and modern times selected by British in 1817 as a free market site it was incorporated as a municipality in 1867.

The lands in district bhiwani are having a rich flora of wild plants. These include Tint, Neem, Katili, Bathua, Datura, Satyanasi, Dudhi, Kikkar, Ulta Kanta, Gadumba, Gokhru etc. Some common cultivated plants of this area are Chana, Brassica, Methi, Barley, Bajra, Jawar, Wheat etc. All these plants are consumed by the local people of district bhiwani for various health benefits associated with them including medicinal values.



**MAP SHOWING LOCATION OF DISTRICT
BHIWANI**

RESULTS AND DISCUSSION

In the present study 11 plant species belonging to 9 families including wild and cultivated were found to be commonly used by the people of tehsil Charkhi Dadri of district Bhiwani as part of their diet for the management of health and prevention of common illness .For each plant local name , botanical name,part consumed, preparations, health benefits are provided. Out of these 11 plant species 6 plants are cultivated ,and 5 are wild. 7 plant are herbs ,2 are shrubs and 2 are trees.

The information gathered from the informants about the health benefits of these plants is as follows:

1. Local Name -Bathua

Botanical Name-Chenopodium album

Family --Chenopodiaceae

Bathua is commonly growing weed in agricultural lands.It is mainly eaten in the form of SAAG and in raita.It is considered as poorman s multivitamin.

*Bathua juice when taken daily by diluting with water is considered helpful in dissolving kidney stones.

*About 50 ml. of bathua juice when taken daily cures anaemia and keep the bones healthy.

**Excess eating of bathua by pregnant women may result in miscarriage.

2. Local Name-Chana

Botanical Name –Cicer arietinum

Family- Fabaceae

Chana is an important pulse of Southern Haryana. As this crop require very little irrigation ,it is grown extensively in southern parts of district Bhiwani. Some villagers cultivate chana mixed with wheat which is commonly called GOCHANI by local people.

*Traditionally chana seeds mixed with wheat grains is gouunded into flour to make Roti.This is a good combination of carbohydrates and proteins.Eating this combination is very good for general health.

*The chana flour is used in various traditional dishes like curry, pakoras, laddoo etc.

*Chana seeds are sprouted and eaten raw to improve the health and stamina. It is supposed to increase longevity in men.

3. Local Name-- Bajra

Botanical Name-Pennisetum glaucum

Family-- Poaceae

Bajra commonly called poorman food is eaten by people of all classes specially in winter alongwith plenty of desighee. Local people of this area has acknowledged the health benefits of this wonderful millet commonly called PearlMillet.

*It is considered as healthy food which prevent Anaemia.This is documented by researches that it contain high content of Iron and zinc essential for haemoglogin formation.

*Prevent constipation.

*Helpful in managing diabetes .

4. Local name—Piaz, Gantha

Botanical Name—Allium cepa

Family --Amaryllidaceae

Onion is one of the most common regular component of food of the people of district Bhiwani.It is eaten raw as salad and added to almost all the curries.

*When eaten raw it promote general health.

*10 ml.of onion juice twice a day for five days kill the intestinal worms.

*2-3 drops of leukewarm onion juice added to ear cures earaches.

*eating raw onions in summer protect the body from heatshocks.

5. Local Name—Jo (barley)

Botanical Name—Hordeum vulgare

Family --Poaceae

Barley is a wonderful cereal extensively cultivated in winter.

*Dehusked barley seeds commonly called “GHAT” is fermented and and a cooling beverage called Raabri is prepared. Taking this raabri in summers protect the body from heat shocks.

*being rich in fiber content it is highly useful for digestive problems.

*Useful in managing Diabetes.

6. Local Name -Tint

Botanical Name—Capparis decidua

Family --Capparidaceae

Tint plants are seen commonly growing on arid and semiarid lands .It grow wildly as a shrub.

*The fruits of tint plant are salted and pickled .The pickle is well known for its ability to keep digestive system healthy and prevent constipation.

*Tint is also eaten to manage diabetes.

7. Local Name—Kikkar

Botanical Name-Accacia Karroo

Family -Fabaceae

Accacia is a wild tree commonly found growing along the roads, in social forestry areas, in agricultural lands etc.

*Tender stem branches are used as tooth brush. Brushing with kikkar twigs are supposed to remove dental plaque,prevent bad breath and keep the gums healthy.

*Fresh pods of kikkar when eaten raw promote sexual health of males.

8. Local Name—Neem

Botanical Name-Azadirachta indica

Family-Meliaceae

Neem is a common tree of this area.It grows in wild as well as grown for its enormous benefits. It considered as “village pharmacy”.

*People specially in villages brush their teeth with tender twigs of neem tree.

*Eating 3-5 tender young leaves purify the blood and prevent skin problems.

*People of district bhiwani highly acknowledge the honey collected from honeycomb on neem tree. It is supposed to be good for eyes.

9. Local Name -Tulsi

Botanical Name-Ocimum sanctum

Family—Lamiaceae

Tulsi is a religious plant commonly grown in houses ,gardens and temples.Beside praying the plant, people get various health benefits from tulsi.

*Decoction prepared from the leaves is highly beneficial in respiratory problems including cough, allergies , bronchitis etc.

*Poultice prepared from leaves is applied on the face as face- pack.It is supposed to be a good cure for pimples and other skin problems.

*It is a well-known antipyretic i.e. resolve fever.

*People also consider that juice extracted from 4-5 leaves and taken daily diluted with water keep the heart healthy.

10. Local Name—Gadumba

Botanical Name –Citrullus colocynthis

Family ----Cucurbitaceae

*Used as laxative and purgative.

*Gastric problems and constipation. A churan is prepared from dried fruits and is mixed with grounded black salt .This mixture is taken with leukewarm water for resolving constipation.

*Gadumba fruit when consumed with Acacia catechu and dried dates may cause termination of pregnancy.

11. Local Name –Haldi

Botanical Name ---Curcuma longa

Family----Zingiberaceae

Haldi is one of the most important component of almost all curries. Various health benefits associated with haldi are as follows

*People use haldi powder as a very good pain killer .For any type of injury may be internal or external -a teaspoon of haldi is taken in a glass of warm milk.

*A poultice of haldi prepared in mustard oil and heated for sometime in a pan when wrapped on wounds cause healing very fastly.

*For blisters in mouth gargling of haldi in water is very usefull.

Conclusions

On the analysis of data collected from the people of tehsil Ch. Dadri it concluded that there is a great potential in local plants for the management of general health .People of this area know the health benefits associated with some of the common plant

growing in wild or cultivated. They very commonly use these plants as part of their diet and some plant very specifically. Eating weed like Bathua clearly indicate that they have standardized and confirmed the health benefits associated with these herbs during long journey of generations. Modern researches have also confirmed the health benefits associated with herbs used by people of this area. When multinational companies are selling multigrain biscuits ,multigrain atta, multigrain dalia etc. and earning huge benefits people of this area are doing the same practice since generations in a cost effective manner. There is a need to acknowledge their knowledge and to standardize the doses , the duration and some harmful effects if any .

REFERENCES

Adlikari, P.M. and Shakya, T.P. (1977). Pharmacological Screening of Some medicinal Plants of Nepal. *J.Nep. pharma . Assoc.* 5 (1): 41-50.

Agarwal, Anil. (Ed). The price of Forest proceedings of a seminar on the Economics of the Sustainable use of Forest Resources, centre for science and Environment, New Delhi, 1992.

Akerele, O.V., Heywood and H. Singe, (1991). The Conservation of Medicinal Plants, Proceeding of an International Consultation 21-71 Marh Taggat Chiang Mai, Thailand, Organized by WHO, IUCN, WWF, Cambridge University press Cambridge, USA

Ambasta, S.P., (1986). The useful Plants of India. Publications and Information Directorate, CSIR, New Delhi India.

Ahuja KD, Robertson IK, Geraghty DP, Ball MJ. Effects of chilli consumption on postprandial glucose, insulin, and energy metabolism. *Am J Clin Nutr.* 2006;84(1):63-9.

Ahuja KD, Ball MJ. Effects of daily ingestion of chilli on serum lipoprotein oxidation in adult men and women. *Br J Nutr.* 2006;96(2):239-42.

Ahuja KD, Robertson IK, Geraghty DP, Ball MJ. The effect of 4-week chilli supplementation on metabolic and arterial function in humans. *Eur J Clin Nutr.* 2007;61(3):326-33.

Allison DB, Fontaine KR, Heshka S, Mentore JL, Heymsfield SB. Alternative treatments for weight loss: a critical review. *Crit Rev Food Sci Nutr.* 2001;41(1):1-28; discussion 39-40.

Attal N. Chronic neuropathic pain: mechanisms and treatment [Review]. *Clin J Pain* 2000;16(3 Suppl):S118-30.

Bouraoui A, Toumi A, Mustapha HB, et al. Effects of capsicum fruit on theophylline absorption and bioavailability in rabbits. *Drug-Nutrient Interact.* 1988;5:345-350.

Chrubasik S, Weiser T, Beime B. Effectiveness and safety of topical capsaicin cream in the treatment of chronic soft tissue pain. *Phytother Res.* 2010 Dec;24(12):1877-85.

D'Alonzo AJ, Grover GJ, Darbenzio RB, et al. In vitro effects of capsaicin: antiarrhythmic and antiischemic activity. *Eur J Pharmacol.* 1995;272(2-3):269-278.

Deal CL, Schnitzer TJ, Lipstein E, et al. Treatment of arthritis with topical capsaicin: a double-blind trial. *Clin Ther.* 1991;13(3):383-395.

Ellison N, Loprinzi CL, Kugler J, et al. Phase III placebo-controlled trial of capsaicin cream in the management of surgical neuropathic pain in cancer patients. *J Clin Oncol.* 1997;15(8):2974-2980.

Friese KH. Acute otitis media in children: a comparison of conventional and homeopathic treatment. *Biomedical Therapy.* 1997;15(4):462-466.

Fusco BM, Marabini S, Maggi CA, Fiore G, Geppetti P. Preventative effect of repeated nasal applications of capsaicin in cluster headache. *Pain.* 1994;59(3):321-325.

Gagnier JJ, van Tulder M, Berman B, Bombardier C. Herbal medicine for low back pain. *Cochrane Database Syst Rev.* [Review]. 2006 Apr 19;(2):CD004504.

Hakas JF Jr. Topical capsaicin induces cough in patient receiving ACE inhibitor. *Ann Allergy.* 1990;65:322.

Hautkappe M, Roizen MF, Toledano A, Roth S, Jeffries JA, Ostermeier AM. Review of the effectiveness of capsaicin for painful cutaneous disorders and neural dysfunction. [Review]. *Clin J Pain.* 1998;14(2):97-106.

Heck AM, DeWitt BA, Lukes AL. Potential interactions between alternative therapies and warfarin. [Review]. *Am J Health Syst Pharm.* 2000;57(13):1221-1227.

Jensen PG, Larson JR. Management of painful diabetic neuropathy [Review]. *Drugs Aging.* 2001;18(10):737-749.

Kang JH, Goto T, Han IS, Kawada T, Kim YM, Yu R. Dietary capsaicin reduces obesity-induced insulin resistance and hepatic steatosis in obese mice fed a

high-fat diet. *Obesity (Silver Spring)*. 2010 Apr;18(4):780-7.

Kenney JK, Jamjian C, Wheeler MM. Prevention and management of pain associated with Herpes zoster. *Journal of Pharmaceutical Care in Pain and Symptom Control*. 1999;7(3):7-26.

Nicholas JJ. Physical modalities in rheumatological rehabilitation. *Archives of Physical and Medical Rehabilitation*. 1994;75(9):994-1001.

Paice JA, Ferrens CE, Lashley FR, Shott S, Vizgirda V, Pittrak D. Topical capsaicin in the management of HIV-associated peripheral neuropathy. *J Pain Symtom Manage*. 2000;19(1):45-52.

Petersen KL, Fields HL, Brennum J, Sandroni P, Rowbotham MC. Capsaicin evoked pain and allodynia in post-herpetic neuralgia. *Pain*. 2000;88:125-133.

Rains C, Bryson HM. Topical Capsaicin. A review of its pharmacological properties and therapeutic potential in post-herpetic neuralgia, diabetic neuropathy and osteoarthritis. *Drugs and Aging*. 1998;7(4):317-328.

Reinbach HC, Smeets A, Martinussen T, Møller P, Westerterp-Plantenga MS. Effects of capsaicin, green tea and CH-19 sweet pepper on appetite and energy intake in humans in negative and positive energy balance. *Clin Nutr*. 2009 Jun;28(3):260-5.

Robbins W. Clinical applications of capsaicinoids [Review]. *Clin J Pain*. 2000;16(2 Suppl):S86-89.

Stam C, Bonnet MS, van Haselen RA. The efficacy and safety of a homeopathic gel in the treatment of acute low back pain: a multi-centre, randomised, double-blind comparative clinical trial. *Br Homeopath J*. 2001;90(1):21-28.

Stander S, Luger T, Metze D. Treatment of prurigo nodularis with topical capsaicin. *J Am Acad Dermatol*. 2001;44(3):471-478.

Stankus SJ, Dlugopolski M, Packer D. Management of herpes zoster (shingles) and postherpetic neuralgia. [Review]. *Am Fam Physician*. 2000;61(8):2437-44, 2447-2448.

Volmink J, Lancaster T, Gray S, Silagy C. Treatments for postherpetic neuralgia--a systematic review of randomized controlled trials. *Fam Pract*. 1996;13(1):84-91.

Yeoh KG, Kang JY, Yap I, et al. Chili protects against aspirin-induced gastroduodenal mucosal injury in humans. *Dig Dis Sci*. 1995;40:580-583.

Yoshioka M, St-Pierre S, Suzuki M, Tremblay A. Effects of red pepper added to high-fat and high-carbohydrate meals on energy metabolism and substrate utilization in Japanese women. *Br J Nutr*. 1998;80(6):503-510.

Zhang WY, Li Wan Po A. The effectiveness of topically applied capsaicin. *Eur J Clin Pharmacol*. 1994;46:517-522.

Amini, A.; Sankian, M.; Assarehzadeh, M.A.; Vahedi, F.; Varasteh, A. (April 2011). "Chenopodium album pollen profilin (Che a 2): homology modeling and evaluation of cross-reactivity with allergenic profilins based on predicted potential IgE epitopes and IgE reactivity analysis". *Molecular Biology Reports* 38 (4): 2578-87

Johnson, Derek; Kershaw, Linda; MacKinnon, Andy; Pojar, Jim (1995). *Plants of the Western Boreal Forest and Aspen Parkland*. Lone Pine Publishing. ISBN 1-55105-058-7

Castetter, Edward F. 1935 Ethnobiological Studies in the American Southwest I. Uncultivated Native Plants Used as Sources of Food. University of New Mexico Bulletin 4(1):1-44 (p. 16)

Miles, David (1978). *An introduction to Archaeology*. Great Britain: Ward Lock. p. 99. ISBN 0-7063-5725-6.

"Bathua (cheel Bhaji) Glossary | Recipes with Bathua (cheel Bhaji)". Tarladalal.com. Retrieved 2013-08-15.

Ahmad VU, Arif S, Amber AR, Usmanghani K, Miana GA. Anew spermidine alkaloid from *Capparis decidua*. *Heterocycles*. 1985; 23:3015-3020.

Ahmad VU, Arif S, Amber AR & Fizza K. Capparisinine, Anew spermidine alkaloid from *Capparis decidua*. *Liebigs Ann Chem*. 1987; 161-162.

Ahmad VU, Ismail N, Arif S & Amber AR. Isocodonocarpine from *Capparis decidua*. *Phytochem*. 1989; 28: 2493-2495.

Ahmad VU, Ismail N, Arif S & Amber AR. Two new Nacetylated spermidine alkaloids from *Capparis decidua*. *J Nat Prod*. 1992;55 (10), 1509-1512.

Ali SA, Al-Amin TH, Mohammad AH & Gameel AA. Hepatoprotective activity of *Capparis decidua* stem against Carbontetrachloride-induced liver damage in rats. *J. Pharmacol & Toxicol*. 2009;4 (4): 167.

Anonymous. The Wealth of India, Raw Materials. Vol. II, CSIR, Delhi (1950) 67.

Anonymous. The Wealth of India, Raw Materials. 1st Supplement Series, Vol. 1, NISCAIR, CSIR, Delhi (2000): 211.

Chahlia N. Effect of *Capparis decidua* on hypolipidaemicactivity in rats. *J. Med. Plants. Res.* 2009; 3 (6): 481-484.

Charaka & Drdhabala. The Charaka Samhita. Vol. VI, DeluxeEd., Shri Gulakunverba Ayurvedic Society, Jamnagar (1949): 7.

Chabe D. Abhinav nighantu or Hindu System of Medicine. Published by Pandit Shridhar Shivlal in Bombay Bhusan Press, Mathura(1932): 154.

Sayajirao University of Baroda, Botanical Memoirs: No. 1, MSU ofBaroda (1966): p. 14.

Chunekar KC & Pandey GS. Bhavprakash nighantu. Chaukhamba Bharti Academy, 8th Ed., Gokulbhavan, Varanasi (1999):p. 546.

Dangi KS & Mishra SN. Anti-oxidant and β -cell regenerationeffect of *Capparis aphylla* stem extract in streptozotocin-induced diabeticrat. *Biol and Med.* 2011; 3 (3): 82-91.

Gaind KN, Juneja TR and Jain PC. Anthelmintic and purgativeactivity of *Capparis decidua* Edgew. *Ind J Hosp Pharm.* 1969; 8: 153-155.

Gaind KN, Juneja TR and Jain PC. Investigation on *Capparisdecidua* Edgew, Antibacterial and antifungal studies. *Ind J Pharmacol.*1969; 3: 124-125.

Gaind KN, Juneja TR and Bhandarkar PN. Volatile principlefrom seeds of *Capparis decidua*. Kinetics of in vitro antibacterial activityagainst *Vibrio cholera*, *V. ogava*, *V.*

Bakshi, D.N.G, Sensarma, P. and Pal, D.C.1999. A lexicon of medicinal plants in India, NayaPrakash, Calcutta, pp.424-425.

Chandrasekharan, M.; Kannathasan, K. Venkatesalu. V, 2008. Antimicrobial activity of fatty acidmethyl esters of some members of chenopodiaceae. *Z.Naturforsch.* C.63 (5-6):331-6.

Dubey, N.K., R. Kumar and P. Tripathi, 2004. Global promotion of herbal medicine: Indian opportunity. *Current Sci.*, 86:37-41.

Evans, W.C.1997. Trease and Evan's pharmacognosy. 14th ed. W.B. Saunders Company limited, U.K., P.3

Gould, J.C. and J.H. Bowei, (1952). Determination of bacterial sensitivity to antibiotics. *Ednib. Med.J.* 59:178.

Grierson, D.S. and A.J. Afolayan, 1999. Antibacterial activity of some indigenous plants used for the

treatment of wounds in the Eastern Cape. *South Africa. J. Ethnopharmacol.*, 66: 103-106.

Lall, N. and Meyer, J.J.M.1999. In vitro inhibition of drug -resistant and drug -sensitive strains of *Mycobacterium tuberculosis* by ethno botanically selected South African Plants, *J.Ethnopharmacol*, 66, 347-354.