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Review Article

TRADITIONAL HERBAL REMEDIES FROM MADHYA PRADESH USED AS ORAL CONTRACEPTIVES-A Field Survey.

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Abstract

A survey of Madhya Pradesh, India was conducted to record the plants used as oral contraceptives, which are well known in the tribal pockets, are mentioned in the present paper. The rular, tribal and aboriginal peoples of Madhya Pradesh utilize a number of medicinal plants for oral contraceptives. Population is the most inflammable problem due to the existing overwhelming growth rate of the world. Herbal oral contraceptives become need of time because of serious adverse effects produced by synthetic oral contraceptives. This forces us to investigate and identify the plants having antifertility activity. A detailed survey was carried out by the authors to collect information on both reported and unreported medicinal plants of this region. Further research on modern scientific line is necessary to improvise their efficacy, safety and validation of the traditional knowledge.

Key words: Madhya Pradesh, oral contraceptives, herbal medicine, growth rate, antifertility activity.

INTRODUCTION

Herbal plants have global market worth about us $ 62 billions per annum and Indian's share is only 0.2%, which will grow up to about 15% in near future. The word herbal is the symbol of safety in contrast to the synthetic ones, which have minimum adverse effect on human health. With the development of civilization, people come to known more and more about the healing properties administration & duration of herbal medicines. Botanically, an herb is a plant with a non-woody stem, which withers and dies down after flowering. In common uses, however the terms applies to all plants whose waves, stems, roots, flowers, fruits or seeds have culinary or medicinal uses (Bakhru, 1999). According to the WHO, approximately 80% of the world's population uses herbal drugs as part of their normal health care routine (Strohecker, 1994). Herbal medicines represent the fasted growing segment to heal the various aliments (Brevolt, 1998). Perhaps the large, impersonal health care system is unpatable to many people and as a result, they turn to herbal medicines as an alternative. Peoples are going to use herbals as part of their health care routine, they must find out amazing qualities about the herbs to maintain the good health. The natural drugs somehow contain the vital force that is going to improve their health, this is actually a belief in the vitalism principle (Tyler, 1944).

Contraceptives are preparations used for reversible suppression of fertility (Selye, 1971; Kuhzrok, 1937; Teitze, 1979). Because of our alarming population trends, antifertility drugs are the need of the day. In developing countries particularly the mortality rate has declined and birth rate has increased due to urbanization. In the earlier part of present century method of contraception used (diaphragms, spermicidal creams, foam tablets etc.) were not that much effective and higher failure rate are associated with their use, this announced the successful use of an oral hormonal for contraception. Over 100 million women worldwide are currently using hormonal contraceptive, with these fertility can be suppressed at will and as long as desire. Although contraceptives containing estrogen and progesterone are effective and popular, the risk associated to the drugs have triggered the need to develop newer molecules from medicinal plants, due to this herbal oral contraceptives are the need of hour. This paper include the studies of 20 different plants like *Abrus precatorius, Acacia arabica, Amaranthus spinous, Azadirachta indica, Butea monosperma, Carica papaya, Curcuma longa, Desmodium gangeticum, Dioscorea bulbifera, Euphorbia antiquorum, Ficus religiosa, Ficus glomerata, Hibiscus rosa-sinensis, Malviscus conzattii, Mucuna pruriens, Plumeria rubra, Randia dometorum, Ricinus communis, Sapindus mukorossi, Vitex negundo for their antifertility activity*.

OBJECTIVE OF THE WORK

The main objectives of the present work are mentioned below;

- To collect scattered scientific information and identify the herbs used as oral contraceptives in Madhya Pradesh (India).
- To explore the method of preparation with dosage form & dose of herbal oral contraceptives.
- To provide ready to use scientific information so that experimental work can be performed from mice to monkey.

SURVEY DESIGN & METHODOLOGY

Thirty study sites scattered over three regions viz. Vindhaya region, Malwa region and Nimar region of Madhya Pradesh (Fig. 1 & 2) were selected on the basis of floristic pattern and rural population. The knowledge about the herbal oral contraceptives was obtained both by the tribal and non-tribal. Emphasis were given to trace out the herbal remedies from the old medicine men, Schedule castes, Schedule tribes, Vaidhayas, Hakims, Ayurvedic, Homeopathic and Unani doctors as well as the specialist in the field of herbal medicines. During the course of present work, all the thirty study sites were visited carefully and special attentions were made to those places where the density of tribal people is more. Systemic fields trips of the study sites were made during the March 2006 to October 2006, the entire region was covered and two places in each centers were touched. Data were collected as per plan suggested by (Varghese, 1996) and (Dwivedi *et al*, 2004).

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ENUMERATION

Family
Habitat
Part Used
Phtyochemistry

***1. Abrus precatorius Linn* (Ghughuchi)**
Family: Papilionaceae
Habitat: Small sized herb, found throughout India, ascending to an altitude of about 1050 m in the outer Himalayas. Red seed variety is similar to the white seed one anatomically & phytochemically.
Part used: Seeds
Phytochemisty: Seed contains the toxin ketin abrin and isolectins (Khare, 2004).

***2. Acacia arabica Linn* (Babul)**
Family: Leguminosae
Habitat: The plant is grown widely in plains region throughout the India.
Part Used: Seeds and bark
Phytochemistry: Tannins

***3. Amaranthus spinous Linn* (Chaulai)**
Family: Amaranthaceae
Habitat: The plant is native to tropical America and found throughout India as a weed and cultivated as well as fallow lands.
Part used: Roots
Phytochemisty: The plant contains alpha spinasterol, hentriacontane, saponins and it also contain amino acids with high content of lysine (Khare, 2004).

***4. Azadirachta indica Juss* (Neem)**
Family: Meliaceae
Habitat: Evergreen tree, grown through out the India and is indigenous to India.
Part Used: Seeds
Phytochemistry: Plant belongs to the classes of diterpenes and cotains nimbin, nimbiol, stigmasteriol, limonoids, nimbidinine, nimbendiol, nimaton, quercetin, myrecetin and kaempterol (Khare, 2004).

***5. Butea monosperma Kuntz* (Palas)**
Family: Papilionaceae
Habitat: Small middle-sized plant, commonly found through out India except in aci region up to 1200 m.
Part Used: Seeds
Phytochemistry: It contains tannins (5.82%) & non-tannins (7.98%). Also contain thiamines, leucocyanidin, procyanidin gallic acid, proteins, fat, carbohydrates, glycoside (Khare, 2004).

***6. Carica papaya Linn* (Papita)**
Family: Cariaceae
Habitat: It is a perennial shrub, grown to the height of 8-12 feet, cultivated in almost all over India specially in Madhya Pradesh, Uttar Pradesh, Punjab, Rajasthan and Gujrat.
Part used: Seeds
Phytochemistry: Seeds contain an alkaloid carpaine, carpasemine, papaverine etc. Its latex contain enzymes, papain and pseudo carpine (Khare, 2004).

***7. Curcuma longa Valeton* (Haldi)**
Family: Zingiberaceae
Habitat: Small perennial herb, grown a height of 2-5 feet, cultivated all over particularly in West Bengal, Tamil Nandu & Maharashtra.
Part Used: Rhizomes
Phytochemistry: Major bioactive constituent of the rhizomes are curcuminoids, the yellow colouring principles of which curcumin constitute the major (50-60%). It also contains essential oil (2-7%) with high content of bissabolane derivatives (Indian Herbal Pharmaco., 2002).

***8. Desmodium gangetium DC* (Shalapari)**
Family: Papilionaceae
Habitat: Wildly grown plant, common on lower hills & plain throughout India, ascending to 1500 m in the Himalaya.
Part Used: Whole plant
Phytochemistry: It contain pterocarpanoids gangetin, gangetnin, desmodin & several alkaloids, also contain indole-3-alkylamines (Khare, 2004).

***9. Dioscorea bulbifera Linn* (Ratalu)**
Family: Dioscoreaceae
Habitat: It is a perennial climber, grown commonly throughout India, ascending up to 2000 m in the Himalayas.
Part used: Tubers
Phytochemistry: It contains steroidal sapogenin (4-6%), diosgenin (2-3%), sorbitol, lucetin, auroxanthin, cryptoxanthin etc. It also contain carbohydrates, fat and fibre (Khare, 2004).

10. Euphorbia antiquorum Linn
Family: Euphorbiaceae
Habitat: The small perennial herb with stout stem, grown widely in many parts of the India.
Part Used: Seed
Phytochemistry: Terpenes, steroids, coumarins, flavonoids, phenolic acids, lignans, xanthones and anthraquinones (Tona *et al*, 2004).

***11. Ficus glomerata Roxb* (Umbar)**
Family: Moraceae
Habitat: Medium tall tree having height upto 16 meters; Bark reddish grey, often Cracked. Leaves dark green, 7.5-10.0 cm long, ovate or elliptic covered with white dots.
Part Used: Bark decoction

***12. Ficus religiosa Linn* (Peepal)**
Family: Moraceae
Habitat: The plant is grown throughout the India wildly, extended to a height of 30-50 feet.
Part Used: Seeds
Phytochemistry: It contains phytosterolin, beta-sitosterol and its glycoside. Contain albuminoids, carbohydrate, fatty matter, coloring matter and caoutchoue 0.7-5.1% (Khare, 2004).

***13. Hibiscus rosa sinensis Linn* (Gudhal)**
Family: Malvaceae
Habitat: The plant is a shrub grown to a height of 5-8 feet and is native to china, cultivated in hotter regions of India and in the foothills of the Himalayas, grown in gardens throughout India.
Part used: Flowers
Phytochemistry: Flowers contain quercetin3-diglucoside, quercetin3 sophorofrioside, kaenferol-3-xylosylglueoside and cyaniding-3- sophoroside-5-glueoside (Khare, 2004).

***14. Mucuna pruriens (L.) DC* (Kemanch)**
Family: Fabaceae

Habitat: The plant is grown in most part of India mainly Madhya Pradesh, Punjab, Bihar, Uttar Pradesh & Maharastra.
Part Used: Seeds
Phytochemistry: Seed contain L-dopa (1.5%) and some other amino acids, glutathione, lecithin, gallic acid, beta-sitosterol, mucunine, mucunadine, prurienine, serotonin, indole-3-allcylamines, N, N-dimethyl tryptamine (Khare, 2004; Rajpal, 2002).

***15. Pumeria rubra* (Frangipani)**
Family: Apocynaceae.
Habitat: It is a small genus of 7-8 species native to tropical and subtropical America. The genus consist of mainly deciduous shrubs and trees. P. rubra native to Mexico, Central America and Venezuela, produces flowers ranging from yellow to pink depending on form or cultivar.
Part Used: Stem
Phytochemistry: A novel lupin alkaloid plumerinine and oleanene type triterpene (Kazmi *et al*, 1989).

***16. Ricinus communis Linn* (Castor)**
Family: Euphorbiaceae
Habitat: A native of India as well as Africa, mostly under cultivation up to an elevation of 2000 m, cultivated throughout India.
Part Used: Root, seed oil
Phytochemistry: Seed yield 46-53% fixed oil, which consists of glycerides of ricinoleic, soricinoleic, stearic & di-hydroxy staric acids. The seeds have lipase & a crystalline alkaloid, ricinine, lectin & ricin, also contains steroid & considerable amount of gallotannins along with many organic ions (Khare, 2004).

***17. Randia dumetorum* (Retz.) Poir (Madna)**
Family: Rubiaceae
Habitat: The plant is a shrub with the height of 3-5 feet, distributed throughout India, up to an elevation of 1350 m in the hills.
Part used: Fruits
Phytochemisty: Fruits consists of saponins (2-3% in fresh fruits and 10% in dried fruit), mainly two saponin viz, randia and randia acid. Also contain, oleanolic acid, prosapogenin, ursosaponon, triterpens, acid resin (Khare, 2004).

18. Sapindus mukorossi Arishta
Family: Sapandiaceae
Habitat: It grows throughout north India in hills and plains and is rarely cultivated in south Indian gardens It is a handsome tree. Paripinnate leaves are crowded near the ends of the branches. The leaflets are 5-10 pairs and lanceolate.
Part Used: Seeds
Phytochemistry: Saponins, glycosides, mukursside (Chirva *et al*, 1966).

***19. Vitex negundo Linn* (Nirgundi)**
Family: Verbenaceae
Habitat: The plant grown to the height of 10-15 feet, through the greater part of India, grown wildly, ascending to an altitude of approx 1500 m in the outer Himalayas.
Part Used: Leaves
Phytochemistry: Leaves yielded an alkaloid nishindine, the flavonoids 5-hydroxy-3, 6, 7, 3'-4'-pentamethoxyflavone & casticin, the irridoid glycoside angusid & 2-P-hydroxy-benzoyl mussaenosidic acid & an essential oil, other constituents are vitamin, carotene etc (Khare, 2004).

TABLE 1: HERBAL MEDICINES USED AS ORAL CONTRACEPTIVES WITH THEIR POSSIBLE MODE OF ACTION

S. No.	Botanical name	Common name	Family	Possible MOA	Reference
1.	*Abrus precatorius*	Ghughuchi	Papilionaceae	Inhibit the release of estrogen hormone, thus prevents oogenesis and ovulation	Ency. of Med. Plants (2004)
2.	*Amaranthus spinous*	Chaulai	Amaranthaceae	Inhibit fusion of sperm & ovum	Kamboj & Dhawan (1982)
3.	*Azadirachta indica*	Neem	Meliaceae	Act as spermicidal or sperm coagulant, inhibiting spermatogenesis	Deshpande *et al* (1980)
4.	*Butea monosperma*	Palash	Papilionaceae	Inhibit the release of ovum from ovary by inhibiting oogenesis	Sharma *et al* (2003)
5.	*Carica papaya*	Papita	Cariaceae	Prevents fusion of sperm with ovum by reducing the activity of sperms	Kamal *et al* (2003)
6.	*Curcuma longa*	Haldi	Zingiberaceae	Inhibit secretion of ovum during menstruation period	Ency. of Med. Plants (2004)
7.	*Desmodium gangeticum*	Shalapari	Fabaceae	Inhibit oogenesis	Billore & Audichya (1978)
8.	*Dioscorea bulbifera*	Ratalu	Dioscoreaceae	Inhibit the release of estrogen hormone, thus inhibiting oogenesis	Ency. of Med. Plants (2004)
9.	*Ficus religiosa*	Peepal	Mosaceae	Inhibit the release of ovum from the ovary by inhibiting of GN	Sharma *et al* (2003)
10.	*Hibiscus rosa sinensis*	Gudhal	Malvaceae	Inhibit release of ovum from the ovary by inhibiting GN release	Sharma *et al* (2003)
11.	*Malviscus conzattii*	Malvat	Malvaceae	Inhibit oogenesis	Sharma *et al* (2003)
12.	*Mucuna pruriens*	Kemanch	Fabaceae	Act in seminal vesicles & prostate gland, thus altering spermatogenesis	Ency. of Med. Plants (2004)

13.	*Randia dumetorum*	Madna	Rubiaceae	Act as spermicidal or sperm coagulant and inhibit spermatogenesis	Singh & Vyas (2006)
14.	*Ricinus communis*	Castor	Euphorbiaceae	Inhibit release of ovum during menstrual cycle	Isichel *et al* (2000)
15.	*Sapindus mukorossi*	Reetha	Spandiaceae	Inhibit spermatogenesis by coagulating the sperm	Singh & Vyas (2006)
16.	*Vitex negundo*	Nirgundi	Verbenaceae	Inhibit the release of ovum by inhibiting GN release & Secretion of estrogen hormone	Sharma *et al* (2003)

TABLE 2: HERBAL MEDICINE USED AS ORAL CONTRACEPTIVES WITH THEIR METHOD OF PREPARATION

S. No.	Botanical Name	Local Name	Family	Part used	Method of preparation
1.	*Abrus preactorius L.*	Ghughuchi	Papilionaceae	Seeds	5 gm seeds boil in 50ml cows milk remove the seed coat, powdered it mixed equal amount of turmeric and jaggery make small pills, take 1 pills daily for 5 days starting on the forth day of menstruation.
2.	*Amaranthus spinous L.*	Chaulai	Amaranthaceae	Roots	Homogeneous crushed roots in rice water taken after menstruation cycle twice a day.
3.	*Azadirachta India Juss.*	Neem	Meliaceae	Seeds	Seed powdered and given 3 gm daily.
4.	*Butea monosperma kuntz*	Palas	Papilionaceae	Seeds	The seeds about 10-15 roasted powdered and to be taken every day in empty stomach.
5.	*Carica papaya L.*	Papita	Cariaceae	Seeds	About 30 seeds powdered and to be taken with water regularly after the menses till the commencement of next menses.
6.	*Curcuma longa valeton*	Haldi	Zingiberaceae	Rhizome	3 gm powder taking during menstruation cycle every day.
7.	*Desmodium gangeticum DC.*	Shalapari	Fabaceae	Whole plant	5 gm powdered of whole plant taken during menstruation period daily.
8.	*Dioscorea bulbifera L.*	Ratalu	Dioscoreaceae	Tubers	Tubers peeled out dried, roasted powdered about 10 gm for 5 days just after menses.
9.	*Ficus religiosa L.*	Peepal	Moraceae	Seeds	Mixed powdered seed 5 gm with equal quantity of suhago borax and taken for 4 days during menstruation period.
10.	*Hibiscus rosa sinensis L.*	Gudhal	Malvaceae	Flowers	5-8 flowers dried, crushed and mixed with honey taken every morning in empty stomach.
11.	*Mucuna pruriens (L) DC.*	Kemanch	Fabaceae	Seeds	Seed powder of 3 seeds given once daily for 3days after menses.
12.	*Ricinus communis L.*	Castor	Euphorbiaceae	Seeds	5-10 ml sap of seed in menstruation period once daily.
13.	*Randia dumetorum L.*	Madna	Rubiaceae	Fruits	Fruits powder in mixed with milk and given twice daily about 50 ml.

RESULTS & DISCUSSION

It has been realized that medicinal herbs are going to play a very important role in future health care system. Most of modern researches on herbal medicine have hinged around traditional folklore medicines. We stand today at the crossroad of ancient traditions and modern advancement with regards to medicine, the modern medicine has brought it host of drug, none of which is non-toxic and hundred percentages safe for us and some of them even causes irreversible damage to our body system, on the contrary the herbal medicines are safe, without any serious side effect. The synthetic drug attacks the targets blindly thus affecting the several related metabolic systems of the body including immune system, while herbal medicines work selectively and gently without disturbing the other systems. Further these drugs prepared with the traditional methods hence, conserve all the natural substances, without losing any essential components and maintains the activity and purity of the drug. The presence of several essential components on the natural balance state is perhaps the only basis, which accounts for minimal side effects of herbal drugs. The traditional herbal medicine is still practiced in large part of our country mostly in tribal and rural areas, a large section of Indian population even today depends upon traditional herbal folk medicine and has deep faith on it. The peoples after getting disappointed from modern medicine and suffering from its grave side effects, are looking back to nature for safety and security. Herbal medicines are cheaper, effective, easily available, also their method of preparation is simple and easier. There is no risk of any side effects and above all herbs fulfill the social and cultural needs of peoples. One of the excellent herb *Abrus precatorius* is a drug of choice for preventing pregnancy and act as

excellent herbal oral contraceptives. Although, a number of plants Neem, Papita, Palash, Castor, Nirgudi, Gudhal, Ratalu, Haldi etc. exhibit a potent contraceptive properties among male & female and act as anti-fertility agents. It is further analyzed that, a detailed research on the plants for their contraceptive action shall be performed, which gave an excellent results, since these herbal oral contraceptives are safe and without any serious side effect and contraindications. The present works carries the result of twenty medicinal plants used as oral contraceptives in Madhya Pradesh with their salient features. The possible mode of action, method of preparation, dosage form and dose of some herbal medicines, which are common and easily available are given in table 1 & 2.

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