

Ethnopharmacological survey of Layyah District Punjab, Pakistan

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Abstract: Ethnobotanical survey was conducted district Layyah, during 2010. The survey was conducted along with Chowk Azam road in some of villages including chaks i.e chak no 145.A/T.D.A,146.A/T.D.A,151/T.D.A,128/T.D.A and chak no 120/T.D.A tehsil and district Layyah. From each village 20 People were selected randomly by lottery method for consultation. For more ethnobotanic information some traditional healers were interviewed. Present study focused on local inhabitants who use traditional resources for self-medication with particular reference to ethnopharmacological application of plant species for diseases and natural cosmetics. The study was carried out by interviewing respondents in remote sites (lack of health facilities, poverty and extensive use of medicinal plants). In total 100 informants were interviewed on their management of diseases. The respondents were old age women (10%), men (60%) and traditional healers (30%) themselves and had knowledge on the medicinal uses of the plants for the said purpose. To collect data systematically on disease management questionnaires and discussions were applied. A total of 100 plants have been reported to use traditionally to cure different ailments in district Layyah, Punjab during survey. About 13 plant species were reported for their use to cure pains in different body ailments. Among these *Eugenia aromatica*, *Terminalia chebula*, *Mentha microphylla*, *Accassia Arabica*, *Eucalyptus camaldulences*, *Foeniculum vulgare*, *Coriandrum sativum*, *Coriandrum sativum*, *Accasia nilotica*, *Brassica compestris*, *Aloe vera*, *Allium sativum* and *Zingiber officinale* constituted the major medications. About 3 plantspecies had been revealed as cure in fever. *Melia azedarach* *Ocimum sanctum*, *Peucedanum graveolens*. Miscellaneous uses of plants consisted of for treatment of wounds, flue and catarrh, hypertension, piles, general debility, cough, fever, Diabetes, Haemorrhoid problems and Spermatorrhoea like problems etc. Some of the reported species are wild and rare, this demands an urgent attention to conserve such vital resources so as to optimize their use in the primary health care system.

Key words: Ethnobotanical survey, Traditional plants, Medicinal use, Layyah

I. Introduction

Layyah District is located in Punjab province of Pakistan. The Indus River flows to its Western side. Layyah has an area of 6291 square kilometres and comprises three tehsils:Layyah,Chaubara and Karor. The medium of education is Urdu and English. The district had a population of 1,520,951 of which only 20.47% are urban and remaining in rural areas. The District Layyah has an extremely hot climate. Maximum temperature in the summer goes up to 53 degree Celsius. The temperature in winter is low due to nearness to Koh-Suleman range of mountains. The people living in rural areas are not well educated and belong to low income groups. They can not afford expensive medical prescriptions. So they totally rely on the traditional medicines which are mostly botanical origin. The tribal people have a strong faith and belief in the traditional health care system, through herbal treatment. Plant species are generally used along with other materials and plant products in different combinations to effective cure. (Shoukat Bhatti 2005).

About three-quarters population of the world depend upon traditional remedies for the basic health care of its people. In fact, herbs or plants always remain the friends of mankind. They provided food, shelter and served the humanity to cure different ailments. Folklore information from many different cultures is an important tool in revealing plants with useful medicinal properties (Balandrin et al., 1993). The soil and climatic conditions of Pakistan are fortunately extremely diverse having all the four seasons in the country and a variety of topography. This makes Pakistan rich not only in botanical diversity but also in inherited traditional knowledge and animal husbandry system. People use plants to cure themselves and their animals from times immemorial (Muhammad et al., 2005). During the second half of this century, socio-political changes have contributed to an irreversible loss of traditional medical knowledge throughout this and other regions of Peru'. Furthermore, political violence during the 1980's discouraged field researchers, thus hampering scientific data

collection. The objectives of the present study are: (i) To survey and tabulate the available scattered information; (ii) to establish any association between the medicinal uses found locally and other uses reported in the literature; and (iii) to inform whether published biological studies for a given plant species have corroborated or refuted medicinal uses claimed in the present research. (Hammond et al. 1998). Morocco has always a long medical tradition and the traditional learning of plant remedies persisted until now. The art of healing is a part of the musliman tradition that reigned in this country. In Fez region, traditional plant medicines had always held a strong position. The Quarawiyine University in Fez was the mean academic centre of Africa, and comprises a medical section (Bellakhdar, 1997). Today, traditional medicines are a great part of modern health care systems in Morocco. Many authors have studied the traditional pharmacopoeia in different areas of Morocco (Ziyyat et al. 1997) have scientifically studied the traditional pharmacopoeia in Oriental Morocco. However, very little informations are available on the traditional plants of the North centre region of Morocco. In order to record all these medical knowledge useful for the maintenance of health, easy to find and to use, and more adapted to the local diseases prevention and treatment (Fleurentin and Dos Santos, 1990), we have proposed to enumerate the most prescribed herbal remedies for treating diabetes, cardiac and renal diseases in North centre region of Morocco (Jouad et al. 2001). Ethnobotanical survey has been found to be one of the reliable approaches to drug discovery (Fabricant and Farnsworth, 2001). Ethnomedical information from this approach can be gathered either from plants used in organized traditional medical system such as Ayurveda, Unani and traditional Chinese medicine (Bannerman et al., 1975; Bannerman, 1979), or from herbalism, folklore and shamanism which concentrate on an apprenticeship system of information passed to the next generation through a traditional healer or herbalist (Rastogi and Dhawan, 1982). Several active compounds have been discovered from plants on the basis of ethnobotanical information, and used directly as patented drugs. Maprouneacin isolated from *Maprounea africana* is used as an antidiabetic agent (Carney et al., 1999). Taxol obtained from *Taxus breviflora* is used as an antitumour drug (Samuelsson, 1992). Artemisinin, discovered from *Artemisia annua*, is used as a potent antimalarial compound against Plasmodium strains resistant to all known antimalarials (Klayman, 1993). There is a need of documentation of the existing medicinal plants being used by the different people of the country living in different cultural groups, so that this can serve as standard tool for further exploration. This study will be conducted with the aim to survey of medicinal plants traditionally used for different minor ailments in the area. District Lodhran is one of the backward areas of the country. This area is selected because of the poor health and financial conditions of people.

II. Materials And Methods

Ethnobotanical survey was conducted district Layyah, during 2010. The survey was conducted along with Chowk Azam road in some of villages including chaks i.e chak no 145.A/T.D.A, 146.A/T.D.A, 151/T.D.A, 128/T.D.A and chak no 120/T.D.A tehsil and district Layyah. From each village 20 People were selected randomly by lottery method for consultation. For more ethnobotanic information some traditional healers were interviewed. Present study focused on local inhabitants who use traditional resources for self-medication with particular reference to ethnopharmacological application of plant species for diseases and natural cosmetics. The study was carried out by interviewing respondents in remote sites (lack of health facilities, poverty and extensive use of medicinal plants). In total 100 informants were interviewed on their management of diseases. The respondents were old age women (10%), men (60%) and traditional healers (30%) themselves and had knowledge on the medicinal uses of the plants for the said purpose. To collect data systematically on disease management questionnaires and discussions were applied. From each village 18 People were selected randomly by lottery method for consultation. For more ethnobotanic information some traditional healers were interviewed. Each village is situated about at the distance of more than 10 kilometer from the main health center present in the area. Present study focused on local inhabitants who use traditional resources for self-medication with particular reference to ethnopharmacological application of plant species for diseases and natural cosmetics. The study was carried out by interviewing respondents in remote sites (lack of health facilities, poverty and extensive use of medicinal plants). A structured interview form was used to collect information in the local language and respondents were queried for the type of herbal cure known to him for different ailments. The interviews included questions that target the local people's perception of names of various diseases, the names of plants, parts of plants used, methods used in preparation and mode of application of the drugs. The acquired data were cross-checked in different areas from local informants either by showing the plant specimen or telling local names of plants to verify the authenticity of claims. The data were tabulated to include the botanical name, local name, parts used, preparation and application, popular use and number of informants. Questionnaire contained the questions to be asked were:

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i) Date _____

- ii) Name _____ iii) Father's name _____
iv) Sex _____ v) Age _____
vi) Address _____
vii) Employment _____ viii) Land holding _____
ix) Presence medical facility Yes / No x) Frequency of consultation _____
xi) Prescription (doctor or self) xii) Name of the drug used _____
xiii) Parts used _____ xiv) Knowledge about toxicity _____

xv) Mode of preparation _____
xvi) Mode of administration _____
xvii) Duration of administration _____
xviii) Literacy status _____
xix) No. of family members with different age groups
Above 15 _____, Above 30 _____, Above 45 _____
xx) Purpose of use _____

The survey was carried out for a period of three months in February, March and April 2010, in five villages located in Layyah district. The interview was conducted using national language. There were a total of 100 informants, two of them were traditional healers and the rest were family members and other individuals who gained knowledge on medicinal uses of plants, from their parents or relatives and had used the plants with promising results. Descriptive statistics was applied on collected data. Percentage of the people using same medicinal plants to cure same disease was calculated.

III. Results And Discussion

A total of 100 plants have been reported to use traditionally to cure different ailments in district Layyah, Punjab during survey. About 3 plant species were reported for their use to cure pains in different body ailments. Among these *Eugenia aromatica*, *Terminalia chebula*, *Mentha microphylla*, *Accassia Arabica*, *Eucalyptus camaldulences*, *Foeniculum vulgare*, *Coriandrum sativum*, *Coriandrum sativum*, *Accasia nilotica*, *Brassica compestris*, *Aloe vera*, *Allium sativum* and *Zingiber officinale* constituted the major medications. About 3 plantspecies had been revealed as cure in fever. *Melia azedarach* *Ocimum sanctum*, *Peucedanum graveolens*.

About 1 palnt species had been reported for treatments of kidney stone and 4 for as anti-venomic medications. Miscellaneous uses of plants consisted of for treatment of wounds, flue and catarrah, hypertension, piles, general debility, cough, fever, Diabetes, Haemorrhoid problems and Spermatorrhoea like problems etc. Regarding the frequency of consultants neem + Thoom+long + mustard oil had been reported about 4.44 % of total observation followed by podina, saunf + ajoin + kalanamak, kanwar gandal, piyaz, saunf, damah, amaltas, ispaghol and haldi about 3.33 % each. While the use of drekh, limoo, ajoin, kortumma, sufeda, molathi, falsa, amla, mehndi, kharboza, thoom, moli, aaro, jaman and harrar had been used 2.22 % each of the total observations.

Some of the reported species are wild and rare; this demands an urgent attention to conserve such vital resources so as to optimize their use in the primary health care system. Phytochemical screening for active constituents, biological activities and clinical studies is of global importance.

Allium cepa

Three of the informants were using this against vomiting and bleeding nose. In literature it is reported to being used against gastric trouble, antidiabetic (Khan et al., 2000; Ahmad et al., 2003). Phytochemicals are volatile oil, sulphur, essential oil, organic sulphur, quercetin, moisture, ether, albuminoids, carbohydrates, fiber, ash and sugar (Kirtikar and Basu, 1993).

Azedaracta indica

Leaves are used as curative agents against bacterial and fungal infections, fever, wound healing, rheumatic disorders, inflammations, and various skin disorders (van der Nat et al., 1991). Anti-ulcerogenic properties (Murthy et al., 1978; Koley et al., 1994), anti-microbial and anti-cancerous properties (Sai Ram et al., 1990; Kusumran et al., 1998; Udeinya, 1993). Phytochemicals are azadirachtin, terpenes, steroids, flavonoids, tannins, coumarins, alkaloids, carbohydrates and proteins (van der Nat et al., 1991).

Aloe vera

One of the informant's was using to cure ear pain and wounds healing. In literature it is reported to being used as anthelmintic, colic, emmenagogue, piles, purgative, rectal fissure, antidiabetic, blisters, stomach ulcer, pussy wounds and eruption (Arshad and Akram, 1999; Ahmad et al., 2003; Shah and Khan, 2006; Ahmad et al., 2007; Qureshi et al., 2009). Phytochemicals found in Aloe vera are Chromanol, pteroylglutamic acid, aloemodin, quinone, d-glucitol, glucosamine, mono and penta saccharids, hexuronic acid, casanthranol I and II, aloetic acid, saponin, glucoside, hecogenin, 2-amino-2-deoxy glucose, chrysophanic acid, m-protocatechuic aldehyde, cellulose, proteinase, resins, imidazole (Ahmad et al., 1993).

Citrus limon

Two of the informants were using this plant's fruit juice as carminative, catarrh. In literature it is reported to being used as Appetizer, antiseptic, stomachic, antiscorbutic, vomiting (Zaman and Khan, 1970). Phytochemicals are Essential oil, citral, limonene, and dipentene (Bhattacharjee, 2000).

Citrullus colocynthis

One of the informants informed that he is using the extract of this plant to cure diabetes. It is an annual herb found in wild as well as cultivated throughout India in the warm areas. The fruit of this plant is traditionally used as anti-diabetic in Mediterranean part of the World. Aqueous extract of its fruit showed dose-dependent increase in insulin release from isolated islets (Abdel-Hassan et al., 2000). Oral administration of aqueous extract (300 mg/kg) in normal rabbits significantly reduced plasma glucose after 1 h and highly significant reduction after 2, 3 and 6 h. Glycosidic extract (50 mg/kg) was more effective in lowering fasting glucose as compared to alkaloidal extract. Graded doses (10, 15 and 20 mg/kg) of saponin also reduced plasma glucose concentration in alloxanized rabbits. Thus, saponins and glycosidic components levels of the rind of *Citrullus colocynthis* are responsible for its hypoglycemic effect (Abdel-Hassan et al., 2000).

Calotropis gigantea

We get information from one informant that its milk is used against snake bite infection. In literature it is also reported to use as Purgative, skin infection, expectorant, anthelmintic, diaphoretic (Arshad and Akram, 1999; Hussain et al., 2008). Phytochemicals are Voruscharin, calotoxin, calotropin, uscharidin, trypsin, calcatin, uzarigenin, syriagenin, proceroside, benzoyllineolone, benzoylisolineolone, cyanidin-3-rhamnoglucoside (Rastogi and Mehrotra, 1993).

Eugenia jambolana

Large evergreen tree of Indian subcontinent, also known as *Syzygium cumini* L. commonly known as 'jamun'. In India, the decoction of kernels of *Eugenia jambolana* is used as a household remedy for diabetes. The seeds and decoction of dry leaves were found to produce hypoglycemic effect (Mahapatra et al., 1985; Coimbra et al., 1992; Nandkarni, 1992). The protective effect of the alcoholic (100 mg/kg) and the aqueous (5 g/kg) extracts of the seed of this plant against tissue damage in diabetic rat brain was studied and it was observed that both the extract effectively protected the tissues, the alcoholic extract having more pronounced effect than the water extract (Stanely et al., 2003).

Melia azedarach

Two of the informants were using to cure scabies. In literature it is reported to being used against Headache, rheumatism, round worms, carminative, glandular swelling, emmenagogue, hysteria, resolvent, blood purifier, scabies, piles, diabetes (Haq and Shah, 1986; Haq and Hussain, 1993; Shinwari and Khan, 1998; Ahmad et al., 2003; Zabihullah et al., 2006).

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Plant Scientific Name	Common Name	Parts Used	Medicinal Use	Mode of Preparation
<i>Melia azedarach</i>	Neem	Leaf	Malarial fever	A handful of leaves are boiled in water and is taken orally, 3 times/day up to 3 days
<i>Ocimum sanctum</i>	Tulsi	Leaf	Fever	Few leaves, added to make a decoction taken orally
<i>Peucedanum graveolens</i>	Ajoin	Seeds	Fever	Syrup of ajoin is applied to patient
<i>Allium cepa</i>	Piyaz	Extract	Bleeding	Extract is applied on infected part
<i>Foeniculum vulgare</i>	Saounf	Seeds	Carminative	Crushed seeds are taken orally

Plant Scientific Name	Common Name	Parts Used	Medicinal Use	Mode of Preparation
Citrus limon	lemon	Juice	Carminative	A handful of juice mixed in a cup taken orally, once daily up to 8 days
Mentha longifolia	Podina	Leaves	Carminative	Leaves boiled in water and taken orally
Emilia sonchifolia	Binj-kudo	Whole plant	Eye inflammation	Whole plant ground and filtered; two drops are put in the affected eye and taken 2 times/day
Hygrophila auriculata	Goobhi	Leaf	Inflammation	A handful of leaf is ground in 4 glasses of water and boiled and taken orally 2 times/day until improvement occurs
Heliotropium indicum	Hathi sundi	Whole plant	Inflammation	A plant ground and pasted over the affected area
Tamarindus indicus	Imli	Bark	Inflammation	The stem bark roasted and applied on affected areas.
Clitoria ternata	Shanghupushpam	Leaves	Inflammation due to poisonous bite	Leaves ground and pasted over the infected area until improvement occurs
Albizia lebbeck	Seerus	Leaf	Inflammation	Leaves ground with extract of coconut husk, pasted on affected area
Melilotus indica	Sinjee	Whole plant	Inflammation	Leaves ground and made into a paste applied on the infected area
Zingiber officinale	Haldi	Tuber	Snake biting	Extract of tuber is applied on infected area
Plant Scientific Name	Common Name	Parts Used	Medicinal Use	Mode of Preparation
Aristolochia indica	Hukka-bel	Whole plant	Poisonous bite	Few plant's juice mixed with 1 cup of milk taken orally 2 times/day up to 3 days
Justicia adhatoda	Arusa	Senescent leaf	Cough	Leaf juice mixed taken orally 2 times/day until improvement occurs
Ficus carica	Injeer	Fruit	Bone Pain	Fruit is eaten orally
Aerva lanata	Choti-bui	Whole plant	Body pain	Plant juice taken orally 3 times/day for 1 week
Achyranthes aspera	Nairuvi	Whole plant	Rabid dog bites	A whole plant ground with 1 cup of coconut juice and taken orally. Leaf paste is applied on bitten area.
Curculigo orchioides	Kali-moosli	Tuber	Leukorrhea	5 gm of tuber powder mixed in a teaspoon of ghee and taken orally