International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Impact Factor (2012): 3.358

Ethnobotanical Studies of Dicotyledonous Plants of Lal Suhanra National Park, Bahawalpur, Pakistan

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Abstract: ***The present investigations were designed to record the ethnobotanical uses of plants by local inhabitants of the Lal Suhanra National Park, Bahawalpur, Pakistan. The nomadic and local inhabitants of the adjoining areas of the park used these natural resources for various purposes including food, shelter, medicine, fodder and cultural purposes. A total of 212 plant species were identified from this area belonging to 126 genera and 50 families during 2005-2007 plant exploration expedition. In this study, 84 plant species of 34 dicotyledonous families used ethnobotanically of the study area were documented. The maximum numbers of species were recorded of family Asteraceae (7 species) followed by Chenopodiaceae and Papilionaceae each (6 species), Aizoaceae and Mimosaceae with (5 species) of each while Capparidaceae, Cucurbitaceae and Solanaceae with (4 species) of each.***

Keywords: Ethnobotany, Lal Suhanra National Park, Flora, Indigenous uses.

1. Introduction

Plants diversity accomplishes the needs of all kinds up to 84% peoples of Pakistan. Therapeutic plants uses are as old as human civilization [1, 2]. Traditional medicines have their origins in the house medications and with the passage of time this knowledge is conveyed from one generation to other generation [3]. Indigenous herbal or eastern system of medicine is entirely based on the plants due to their curative properties. The famous saying of Hippocrates "Let medicine be your food and food your medicine shed the light on the importance of herbal medicines [4].

Lal Suhanra National Park is located in the southeastern parts of the Punjab Province of Pakistan, between 29° 12′ and 29° 28′ northern latitudes and 71° 48′ and 72° 08′ eastern longitudes, with an altitude ranging from 125 to 140 meters. Lal Suhanra National Park was formally declared in the Bahawalpur district of Punjab in 1972. The park was established to protect existing wildlife and vegetation; reintroduce extirpated species; rehabilitate wildlife habitat; create education/research facilities for local and foreign tourists, and recreational facilities for the local population. The complicated topography and habitat heterogeneity, the area divided into three basic ecosystem types, irrigated forest plantation, desert area/dry land and pond area/Pati Sir Lake having different types of vegetation as Irrigated Plantation, Tropical Thorne Forest, and Riverine Forests vegetation.

The climate of the area is of sub-tropical continental type, characterized by low and sporadic rainfall, high temperatures, low relative humidity, high rate of evaporation and strong summer winds. The temperature of the study area ranges from 50ºC during summer to -2ºC during winter, mean relative humidity is about 60% and rainfall varies between 90 to 200 mm annually [5, 6].

National parks provide a diverse habitat for natural resources including plant diversity being ehnobotanically very important. A large number of ethnobotanical studies have been documented by people from different areas of Pakistan. The traditional use of plants for curing various diseases and health complications is one of the major utilities. These studies revealed that the plant resources in connection with indigenous knowledge are diverse and need to be documented [7…12]. However, little attention is paid to document the ethnobotanical uses of plants of National Parks in Pakistan. Few studies of national parks from different areas of Pakistan were carried out as Shinwari & Khan [13] conducted ethnobotanical studies of Margala Hills National Park, Islamabad and Zandial [14] and Bukhari (1994) conducted ethnobotanical studies in Machyara National Park (AJK). Gilani [16] documented ethnomedicinal uses of herbs of Ayubia National Park, Abbottabad, Khan et al., [17] studied the medicinal uses of Chitral Gol National Park and Qureshi [18] documented the medicinal flora of Hingol National Park.

Lal Suhanra National Park has never been explored ethnobotanically. It is the first attempt to document the indigenous uses of the plants of Lal Suhanra National Park and is important because plants are regularly used for managing daily necessities of the inhabitants of the study area. The objectives include collecting ethnobotanical information and plant specimens which provide basis for future studies of plant systematics and natural product based drug discovery. The main objective of the present study is to document the indigenous knowledge of plant resources of Lal Suhanra National Park and to provide scientific basis for further research.

2. Material and Methods

Ethnobotanical surveys were conducted during 2005 to 2007. A specially designed questionnaire was used to collect information from local inhabitants, forest and wildlife filed staff, 'Hakims' spiritual healers and old aged females. About 100 individuals were interviewed and data including local name, plant parts used, plant species used, ailment treated and ethnobotanical values, fodder, fiber, food, fuel wood, timber, thatching and industrial were collected. The plants were collected, pressed, preserved and mounted on herbarium sheets and identified with the help of taxonomic literature [19….26]. The voucher specimens of all reported

plants were deposited in the herbarium of Botany Department, Govt. College Bosan Road, Multan.

3. Results

The present investigation about ethnobotanical uses of plants revealed that a total of 84 plant species belonging to 71 genera and 34 dicotyledonous families have been recorded being used for different purposes. The highest numbers of species were recorded of family Asteraceae (7 species) followed by Chenopodiaceae and Papilionaceae each (6 species), Aizoaceae and Mimosaceae with (5 species) of each, Capparidaceae, Cucurbitaceae and Solanaceae (4 species) of each, Asclepiadaceae and Zygophyllaceae (3 species) of each and Nine Families belong two species each while the remaining families had single species each. The results are described alphabetically with their respective families, in the format: family, botanical name, local name and ethnobotanical uses as follows:

1. Aizoaceae

1) ***Gisekia pharnaceoides*** Linn.
Local name: Baluka Sag
Ethnobotanical uses: Whole plant is used for the treatment of chronic ulcer and wound. Ash powder used externally on cut or bleeding. It is useful in fever and joints inflammation. It is cooked as vegetable.

2) ***Limeum indicum*** Stocks ex T. Anders.
Local name: Jangli lonak
Ethnobotanical uses: It is used for the treatment of respiratory infection, productive cough, eczema, itching, jaundice and fever. It is used as vegetable.

3) ***Trianthema portulacastrum*** Linn.
Local name: Itsit
Ethnobotanical uses: Used in allergic cold and cough, fever and jaundice. It is also used as a vegetable. Animals are grazed frequently. It is used as fodder.

4) ***Trianthema triquetra*** Rottl. And Willd.
Local name: Choti ulvati
Ethnobotanical uses: Used in wound healer and chronic ulcer. It is useful in chronic fever. It is use as a fodder.

5) ***Zaleya pentandra*** (Linn.) Jeffrey.
Local name: Itsit, Wisah
Ethnobotanical uses: It is used in gastrointestinal disorder, dyspepsia and aphrodisiac. It is very useful for scorpion and snake poison. It is commonly used as fodder.

2. Amaranthaceae

6) ***Achyranthus aspera*** Linn.
Local name: Puth kanda
Ethnobotanical uses: Ash powder mixed with honey very useful in pneumonia and dry cough. It is used in kidney stones and joint inflammation. Leaves are used as a hair tonic. The roots are useful in weak eye sight and seeds powder mixed with sugar for the treatment of abdominal colic and dysmenorrhea.

7) ***Aerva javanica*** (Brum.f.) Juss. Ex J.A.Schultes.
Local name: Bui
Ethnobotanical uses: Commonly used in kidney infection and stones. It is used as shelter and making "Gopas" and animal fencing.

8) ***Amaranthus viridis*** Linn.
Ethnobotanical uses: Very useful in hepatitis, jaundice and fever. Its paste used for snake and scorpion bite. It is used in kidney infection and burning urination. Leaves are used externally in joint inflammation. It is a source of fodder.

9) ***Digera muricata*** (Linn.) Mart.
Local name: Tandla, Tandula
Ethnobotanical uses: Used in constipation, dyspepsia, excessive urination, extremities burning and headache. It is used as vegetable and salad. It is use for fodder.

3. Apiaceae

10) ***Anethum graveolens Linn.***
Local name: Soey
Ethnobotanical uses: It is used as colic pain in babies and flatulence in young children. Its Seeds are carminative, mildly diuretic, stimulant and stomachic and improves appetite, relieves gas and aids digestion. Chewing the seeds improves bad breath. Very useful milk flow in lactating mothers, and is often given to cattle's for this reason. This herb is commonly used for flavoring in food, pickles and salads.

4. Asclepiadaceae

11) ***Calotropis procera (Ait.) Ait. f.***
Local name: Ak
Ethnobotanical uses: The milky juice (Latex) of the plant is irritant and applied as a cure against thorn pricking. The latex is allowed to fall on sand and is taken as cure against snakebite. Latex is reputed for treating unhealthy skin, dropsy, rheumatism and to relieve skin disorders and eczema. Fresh leaves used as bandage for resolving swellings of the rheumatic joints as well as pain. Powder of flowers in small doses is considered useful in treatments of colds, asthma and indigestion loss of appetite and diarrhea. It is use as a fuel wood.

12) ***Leptadenia pyrotechnica (Forssk.) Decne.***
Local name: Khip
Ethnobotanical uses: The leaves are used as expectorant in sore throat, headache, diarrhea, asthma and rheumatism. The root bark is mixed with cow's milk for using it as purgative. It is used in low blood pressure. The unreap fruit cooking in camel milk is useful for the treatment of obesity. It is use as a shelter and fuel wood. It is a source of fiber.

13) ***Oxystelma esculentum (Linn. f.) R.Brown.***

Local name: Dudhani
Ethnobotanical uses: It is used for dry cough, night fall, pains, inflammation of muscles and joints, leucoderma (Wight spots on skin), sore throat and itching. Decoction and infusion of the plant is used as a gargle and mouth wash in the treatment of sore throat and mouth ulcers. Fruit and leaves are being used burning urination and diuretic.

5. Asteraceae

14) *Conyza bonariensis DC.*
Ethnobotanical uses: It is said to be a very effective treatment for bleeding haemorrhoids. An infusion of the plant has been used to treat diarrhoea and internal bleeding. Applied externally to treat warts and bleeding piles. The leaves are used in the treatment of diabetes, diarrhoea, dysentery and internal bleeding. It is grazed by goats and sheep.

15. *Echinops echinatus* Roxb.
Local name: Unt katara
Ethnobotanical uses: The root bark of the plant is used in cough, bronchitis, asthma and sexual debility. Whole plant is being used in different types of diseases such as hepatitis and in jaundice. Infusion of the roots is useful in seminal debility, impotency, hysteria, dyspepsia, hepatitis and chronic persistent fever.

16. *Eclipta alba* Hassk.
Local name: Bhangra
Ethnobotanical uses: Mostly traditional used for blood purifier, leprosy, itch and urticaria. Paste on over the burn areas of the body. It relieves pain when dropped as juice into the ears in earache. Decoction is used in jaundice, fevers and bleeding disorders. Infusion of leaves is very useful for toothache and gum complaints. It is very useful for hair tonic. The root is used for nausea and vomiting. Leaves are cooked and eaten

17. *Launaea nudicaulis* Hook.
Local name: Bhattal, Dudhkal
Ethnobotanical uses: Whole plant used in poor digestion and constipation. The plant increases the milk in human and animals during lactation. Decoction of leaves is used for the treatment of fever and cough. It is use for fodder.

18. *Pulicaria crispa* Sch. ex Bip.
Local name: Bui
Ethnobotanical uses: The local people making syrup (Locally called "Karvi Botal") is used for the treatment of enlargement of liver, jaundice and splenomegaly. It is prescribed for the treatment of ulcer, wounds, eczema, itch, boils and skin eruption

19. *Vernonia cinerascens* Schultz-Bip.
Ethnobotanical uses: Most commonly used in diabetes mellitus, malaria and chronic fever. It is used in menstrual disorders and female infertility.

20. *Xanthium strumarium* Linn.
Local name: Leedha
Ethnobotanical uses: The decoction of leaves and roots are used for their appetizer, diuretic, laxative and sedative activities. An infusion of the plant has been used in the treatment of rheumatism, kidney disease and tuberculosis. It has also been used as an ointment on the armpits to reduce perspiration.

6. Bignoniaceae

21. *Tacomella undulata* (Roxb.) Seeman.
Local name: Lahora
Ethnobotanical uses: It is used in female problems dysmenorrhea and leucorrhoea and skin diseases.

7. Boraginaceae

22. *Heliotropium crispum* Desf.
Local name: Kali bui
Ethnobotanical uses: Mostly used in kidney problem like burning urination, kidney stones, vesicles stones and urinary tract infection. It is used in joint inflammation and headache.

23. *Heliotropium strigosum* subsp. ***strigosum*** Willd.
Local name: Gorakh pan
Ethnobotanical uses: It is prescribe for the treatment of liver diseases jaundice, hepatitis, gall stone, enlargement of spleen and hepatic failure. This plant uses in joint pain, migraine, skin discoloration and chronic fever.

8. Brassicaceae

24. *Farsetia hamiltonii* Royle.
Local name: Lathia, Fareed boti
Ethnobotanical uses: This plant used in polyuria, diabetes mellitus and diabetes insipidus. It is useful in burning extremities, general weakness and debility.

9. Caesalpiniaceae

25. *Cassia occidentalis* Linn.
Local name: Desi sanna
Ethnobotanical uses: This plant used in respiratory problems like cough asthma. It mainly used in liver diseases hepatitis, jaundice, all types of fever and hepatic failure.

10. Capparidaceae

26. *Capparis decidua* (Forssk.) Edgew.
Local name: Karir
Ethnobotanical uses: It is used for the treatment of fever, arthritis, menstrual disorders, anti-rheumatic, appetizer and laxative. It is used for the treatment of asthma, cough, vomiting, piles, ulcer, boils, swellings, urinary troubles, antidote to poison and inflammation of joints. The juice of fresh plant is dropped into the ear to kill worms. The pickle is made with unripe fruit of this plant that is also used in various diseases. Fruits are used for hypertension, poor digestion, flatulence and

constipation. Wood is used for thatching their "gopas" and "sahls" and other domestic uses. It is also a good source of fuel wood.

27. *Cleome brachycarpa* Vahi ex DC.
Local name: Nooli, Kastori
Ethnobotanical uses: Mostly used for the treatment of unhealthy skin, arthritis, inflammation, joint pain and skin diseases. The plant is used as an anthelmintic and piles. This paste is externally used in scabies and leucoderma. The powder of whole plant is very useful in diabetes mellitus.

28. *Cleome viscosa* Linn.
Local name: Kastoori buti
Ethnobotanical uses: The leaves are paste on forehead in headache and earache. It is used as a wound healer and chronic ulcer. The roots used in dyspepsia, constipation and tape worms.

29. *Dipterygium glaucum* Decne.
Local name: Phail
Ethnobotanical uses: It is used in eczema, boils, itching, acne and unhealthy skin. Its seeds are eaten by different birds.

11. Chenopodiaceae

30. *Chenopodium album* Linn.
Local name: Bathus
Ethnobotanical uses: This plant is used in appetizer, tonic, aphrodisiac, colic pain and eye sore. Commonly use in cough, cold, asthma and allergy. It is beneficial in dyspepsia, constipation and anal itching. The plant is highly grazed and used as a vegetable makes delicious food.

31. *Chenopodium murale* Linn.
Local name: Krund
Ethnobotanical uses: It is used against ringworms and hookworm. Plant is sweet and acrid, digestive, carminative, aphrodisiac, tonic, and is used in peptic ulcer, dyspepsia, flatulence, seminal weakness. The plant is used as a vegetable and preferred for grazing. The plant is used as a fresh fodder.

32. *Haloxylon recurvum* Sensu Bunge.
Local name: Khar, Saji
Ethnobotanical uses: Local people use in unhealthy skin, ulcer and wound rupturing. Ash powder is used in flatulence, dyspepsia, constipation and hemorrhoids. It is burned to prepare "Soda" for industrial use making soap and washing powder.

33. *Haloxylon salicornicum* (Moq.) Bunge ex Boiss.
Local name: Lana
Ethnobotanical uses: Local people use in jaundice, hepatitis, gall stones, gastric ulcer and poor digestion. It is beneficial in gynecological disorder like abortion in third trimester, excessive bleeding and leucorrhoea. It is used as fuel wood.

34. *Salsola imbricata* Forssk.
Local name: Lani
Ethnobotanical uses: Traditionally used in poor digestion, piles, vomiting and constipation. It is useful in vertigo, migraine and headache. It is used in skin diseases, scabies, eruption and wounds. It is burned to prepare "Soda" for industrial use making soap and washing powder. It is also use as fuel wood.

35. *Suaeda fruticosa* Forssk. Ex J. F. Gmelin.
Local name: Kali lani
Ethnobotanical uses: The leaves are applied as poultice in conjunctivitis and eyes sore and sinusitis. This plant is very useful for colic pain, dyspepsia, poor digestion and constipation. It is used in high blood pressure, lowering cholesterol level and diabetes**.** It is burned to prepare "Soda" for industrial use making soap and washing powder. It is also use as fuel wood.

12. Convolvulaceae

36. *Convolvulus arvensis* Linn.
Local name: Wanvary
Ethnobotanical uses: Mostly used in excessive menstrual bleeding and leucorrhoea. It is useful in fever, headache, wound and ulcer healer. The juice of whole plant used in constipation and scorpion bites.

37. *Cressa cretica* Linn.
Local name: Oin
Ethnobotanical uses: This plant and is used in diabetes, ulcers, unhealthy skin and healing wound. It is used in respiratory diseases cough, allergic cold, expectorant and asthma. Traditionally uses anthelmintic, stomachic and constipation. It is useful as a tonic and aphrodisiac.

13. Cucurbitaceae

38. *Citrullus colocynthis* (Linn.) Schrad.
Local name: Tuma
Ethnobotanical uses: It is used for the cure of boils, pimples, menstrual diseases and preserving the hairs from turning grey. Fruit and roots are considered as anti-dote to snake poison. Fruit is used in small doses in constipation, fever and intestinal infection. It is prescribed as vaginal suppository from securing abortion. The powder of fruit is useful in asthma, paralysis, facial paralysis, sciatica and epilepsy. This plant is used for the treatment of abdominal problems. The root used as a tooth stick for cleaning the teeth and pyorrhea.

39. *Momordica balsamina* Linn.
Local name: Jangli Karela
Ethnobotanical uses: Traditionally used in diabetes, numbness, fatigue and hypertension. It is used in gastric problems like flatulence, dyspepsia, constipation. It is cooked as a vegetable.

40. *Mukia maderaspatana* (Linn.) M. J. Roem.
Local name:
Ethnobotanical uses: It is commonly used in cold,

cough and allergic asthma. Traditionally uses in joint pain, colic, gall stones and constipation.

41. ***Praecitrullus fistulosus*** **(**Stocks) Pangalo.
Local name: Jangli Tinda
Ethnobotanical uses: It is useful in diabetes and obesity. Commonly used in piles, appetizer and constipation. It is also used as a vegetable.

14. Cuscutaceae

42. ***Cuscuta reflexa*** Roxb.
Local name: Akash-bel
Ethnobotanical uses: The plant used in anti-hemorrhage, constipation, blood purifier, carminative, diuretic, expectorant and sedative. It is used for the treatment of pain in joints, headache, vomiting, paralysis and diseases of spleen.

15. Euphorbiaceae

43. ***Euphorbia prostrata*** Ait.
Local name: Hazar dani
Ethnobotanical uses: The leaves are used in epistaxis and hemorrhoids. Seeds are used in ringworms and constipation. The leaves juice apply locally on scorpion bites. It is used as of skin allergy and as a mosquito and fly repellent. It is externally used for the treatment psoriasis and eczema. It is use as fodder.

44. ***Ricinus communis*** Linn.
Local name: Harnoli
Ethnobotanical uses: The leaves are used locally on edema and inflamed body parts specially joints cure the joint inflammation, pain and edema. Seeds oil use with milk, increasing the milk during lactation and beneficial for constipation.

16. Fumariaceae

45. ***Fumaria indica*** (Haussk.) Pugsley
Local name: Pitpapra
Ethnobotanical uses: It is used in pains, diarrhea, fever, influenza and liver complaints. The herb mixed with honey mar is taken internally to prevent vomiting. A cold infusion of the plant is used to treat wasting diseases of children and to help cooling during fever and in the treatment of constipation and dyspepsia

17. Lamiaceae

46. ***Mentha viridis*** Linn.
Local name: Podina
Ethnobotanical uses: The dry leaves powder used as an antispasmodic, carminative and stimulant. This herb is very useful in children problems like difficulty in teething and diarrhoea. Decoction of leaves is with black paper used in dyspepsia, flatulence, colic, vomiting and hiccough. Infusion commonly used in gastric disorder, anti-inflammatory, fever and as a local application for painful haemorrhoids. It is used in salads.

18. Malvaceae

47. ***Abutilon muticum*** Sweet
Local name: Kanghi buti
Ethnobotanical uses: The leaves are used in renal stones and colic. Infusion of leaves is useful in haemorrhage, diuretic and vesicle stones. It is useful in piles and genital infection. Infusion of roots and leaves are prescribed in fever, burning sensation in body, diuretic and arthritis. Infusion of roots is useful in bleeding in urine and psoriasis. It is use as a fuel wood.

19. Mimosaceae

48. ***Acacia jacquemontii*** Benth.
Local name: Banwali
Ethnobotanical uses: It is used to prevent the babies from measles, chicken pox and small pox and fever in adults. Powdered and gum is used for the treatment of diabetes mellitus and to cure bleeding. Gum is also considered as nutritive tonic and aphrodisiac in sexual debility and to cure night fall, premature ejaculation and gonorrhea. Decoction of bark is largely used as gargle and wash in mouth affections. It is use as a fuel wood.

49. ***Acacia nilotica*** (Linn.) Delile.
Local name: Kikar
Ethnobotanical uses: The leaves are applied to eye sores in children. Pods are soaked in cow's milk and dried in shade, ground and mixed with sugar are given in sexual debility. The pods and leaves are used as astringent in diarrhea and bark is also used in the treatment of asthma. The decoction of boiled thorns is taken against pains of the joints and against heavy sweating. Powdered gum is used for the treatment of diabetes mellitus and to cure hemorrhages. Gum is considered as nutritive tonic and aphrodisiac and to cure premature ejaculation and impotency. The plant is also used as timber and as furnishing material. It is also a good source of fuel wood. Woody branches are used as tooth brushes. The plant is used for fodder, fuel, charcoal and agricultural implements.

50. ***Albizia lebbeck*** (Linn.) Benth.
Local name: Sharin
Ethnobotanical uses: The powder of root bark is used to strengthen the gums, when they are spongy and ulcerative. The flowers are prescribed for the treatment of carbuncles; and are used to increase viscosity of seminal fluid. The leaves are prescribed for the treatment of conjunctivitis and night blindness**.** The wood is use as timber for furniture and fuel. The plant is used as fodder for goats and sheep, fuel and agricultural implements.

51. ***Prosopis cineraria*** Linn.
Local name: Jandi, Kanda,
Ethnobotanical uses: The immature pods called "Sangari" are very popular culinary dish and cooked as vegetable by the local people. Mature pods are rich in nutrients and are eaten by cattle, sheep, goats, and even

humans. Flowers are pounded, mixed with sugar and used during pregnancy as safe guard against abortion. The bark of the tree is dry, acrid, and bitter with sharp taste, cooling, anthelmintic, tonic, cures dysentery, bronchitis, asthma, leucoderma and piles. The bark is used as a remedy for rheumatism, in cough, cold and asthma. It provides fodder to livestock and wild animals. It is used as a fodder and fuel timber.

52. *Prosopis glandulosa* Torr.
Local name: Waleti kikar
Ethnobotanical uses: The traditionally bark is useful for mouth and throat infections including ulcers and bronchitis. The flowers are used for the prevention of abortion, dysentery, bronchitis, asthma, and rheumatism. Leaf smoke is used to cure eye infections and recommended against snake-bites and scorpion stings. Preparations from fresh buds are used to treat conjunctivitis. Leaf preparations are used to mend broken bones, cure gall stones, dyspepsia and venereal disease. It is used as a fuel wood, shelter and fodder.

20. Molluginaceae

53. *Glinus lotoides* Linn.
Local name: Pahtokar
Ethnobotanical uses: The ash powder used on chronic ulcer and rupture wound. Decoction is useful in cough and lungs diseases. Leaves are used as a vegetable.

21. **Myrtaceae:**

54. *Eucalyptus camaldulensis* Linn.
Local name: Sufaida
Ethnobotanical uses: The traditional use appears to help relieve symptoms of colds, flu, chest congestion, sore throat, bronchitis, pneumonia, and respiratory infections. For internal use, eucalyptus can be made into a tea or tincture.. For outdoor enthusiasts, eucalyptus rubbed into the skin seems to work well as an insect repellant, especially for mosquitoes and fleas. The plant is used for timber, carriages, fuel, charcoal, furniture, oil (leaves), shelterbelt, pulp, and fiber board.

22. Nyctaginaceae:

55. *Boerhavia repens* Linn.
Local name: Biskhapra
Ethnobotanical uses: The plant is appetizer, anti-inflammatory, diuretic and expectorant. It is used for the treatment of anemia, asthma, and enlargement of spleen, inflammation, external swelling, muscular pains, jaundice, and scorpion stings. Decoction of the whole plant is useful for the blood purifier, delivery pain and vomiting.

23. Oxalidaceae

56. *Oxalis corniculata* Linn.
Local name: Khati buti
Ethnobotanical uses: Leaves are used for removing warts and inflamed parts, relieves pain and other infection. Juice of the leaves is used to cleanse wounds and for itches. It is also used for chronic dysentery and enteritis. It is used as a vegetable.

24. Papavaraceae

57. *Argemone mexicana* Linn.
Local name: Satinasi
Ethnobotanical uses: The root powder is mixed misri (Sugar) to cure premature ejaculation and impotency. Decoction of leaves is used in kidney failure, itching, unhealthy skin and ascites. Fruit, flowers and leaves are cook in mustard oil till water evaporates and remaining only oil and apply locally on skin diseases. Seeds powder is used in hepatitis and jaundice.

25. Papilionaceae

58. *Alhagi maurorum* Desv.
Local name: Jhansa
Ethnobotanical uses: It is useful for renal stones and kidney infection. Its decoction is useful in piles and externally for the treatment of pimples and freckles of face. The plant is used as an expectorant and also recommended as diuretic. It is a good fodder for livestock.

59. *Crotalaria burhia* Hamilt.
Local name: Chag
Ethnobotanical uses: The infusions are taking internally and apply externally cure leucoderma and other skin diseases. The powder is used in joint inflammation and pain. This plant locally use as shelter making ("Gopas" for human and fencing for animals) and fuel wood.

60. *Dalbergia sissoo* Roxb.
Local name: Tahli
Ethnobotanical uses: Traditionally used in the diseases of eyes, nose, scabies and burning sensation of the body. The leaves are prescribed for the treatment of burning urination, boils, eruption and vomiting. A decoction of the leaves is effective in the acute stage of male sexual diseases. Dried bark and fresh leaves are used as local various forms of bleeding, menstrual bleeding, piles and varicose veins. It is used for fodder, furniture, fuel, railway carriages, sporting goods, farm implements, and shade**.**

61. *Indigofera argentea* Brum. f.
Local name: Jantri
Ethnobotanical uses: It is used in headache, vertigo and fatigue. This plant is useful in fever, inflammation and body pain. The infusion is beneficial for burning sensation in whole body. It is use for fodder.

62. *Melilotus alba* Desr.
Local name: Sanjee
Ethnobotanical uses: The leaves juice is very useful in sore eyes, conjunctivitis and earache. The powder is used in colic, flatulence. It is used as an eye sight tonic. It is use for fodder.

63. ***Rhynchosia capitata*** DC.
Ethnobotanical uses: It is used in gastric problems flatulence, constipation and purgative. Locally commonly used in headache, nausea and vomiting.

26. Polygonaceae

64. ***Calligonum polygonoides*** Linn.
Local name: Phog
Ethnobotanical uses: The stem buds are chewing in excessive thirst and dryness of mouth. It is used in body heat and fever. The flowers cooked as a vegetable and traditional dish use in gastric problems and joints pain. Locally used as a fuel wood and shelter.

65. ***Polygonum plebejum*** Linn.
Local name: Cherri hatha
Ethnobotanical uses: The powder of plant is recommended for the treatment of productive cough, bronchitis, asthma and pneumonia. It has been reported that the plant is used for bowel complaints and dried powder of whole plant is taken for pneumonia. Livestock including cattle, sheep and goats graze on this plant**.**

27. Portulacaceae

66. ***Portulaca oleracea*** Linn.
Local name: Lonak
Ethnobotanical uses: It is prescribed for the treatment of painful urination, enlargement of liver and spleen. It is very useful in kidney and bladder affection; useful for the treatment of dysentery, sore nipples and ulcers of mouth. It is applied over burned parts of body for relief burning, applied over head for the treatment of headache, useful for diarrhoea. Powder of leaves is applied in mouth for the treatment of ulceration of mouth. Paste of leaves is applied over scalds and swellings. It is cooked as vegetable.

67. ***Portulaca quadrifida*** Linn. (Linn.)
Local name: Lonak
Ethnobotanical uses: It is used in skin disease unhealthy skin, psoriasis and ulcer. Mostly use is in kidney infection and blabber stones. The plant juice beneficial in respiratory problems cough, cold and asthma. Paste on inflammatory area, warts and hemorrhoids. It is cook as vegetable.

28. Rhamnaceae:

68. ***Ziziphus mauritiana*** Lamk.
Local name: Ber, Beri
Ethnobotanical uses: The fruit is very useful in chronic bronchitis and blood purifier. The leaves are effective in scabies, throat infection and sense of burning in the body and said to promote hair growth. Root is useful in dyspepsia, anemia. Plant is important for furniture, timber and fuel wood. The plant is valuable for grazing of goat, sheep and camels. It is used as a fuel, timber and fruit.

69. ***Ziziphus nummularia*** Wight & Arn.
Local name: Beri
Ethnobotanical uses: It is used in diabetes, analgesic, anti-inflammatory and sedative. Leaves paste in thorn pulling and wound rupturing. It is useful as food, fodder, nutrient, medicine, construction material and fuel.

29. Salvadoraceae

70. ***Salvadora oleoides*** Decne.
Local name: Warn, Pilu, Jal
Ethnobotanical uses: The most commonly used for the treatment of hyperacidity, appetizer, aphrodisiac and purgative. It is also used for the treatment of piles, bronchitis, asthma, cough, fever, and spleen enlargement. Camels do brows on this plant. Fruit is sold in local market and used as food. It is a good source for shade for humans and animals. It is used for fuel, fruit, wheels, building materials, fodder, boat and building knees.

30. Scrophulariaceae

71. ***Anticharis linearis*** (Benth.) Hochst. ex Aschers.
Local name: Assmani buti
Ethnobotanical uses: It is used in diarrhoea, fatigue and general weakness. Paste externally used on forehead for headache.

72. ***Verbascum thapsus*** Linn.
Local name: Geedar tabcoo
Ethnobotanical uses: Traditionally used in skin diseases eczema, psoriasis, acne and itching. It is very effective to cure bronchitis, dry cough, sore throat and asthma. Local people are commonly used in headache and migraine. Externally use the juice or oil of the flowers in earache.

31. Solanaceae

73. ***Datura metel*** Linn.
Local name: Dhatura
Ethnobotanical uses: It is used commonly in body pains like arthralgia, headache, migraine, colic and fatigue. Traditionally use for the treatment of cough, cold, coryza and asthma. It is also useful in hysteria, nervous headache and epilepsy.

74. ***Solanum nigrum*** Linn.
Local name: Mako
Ethnobotanical uses: It is prescribed for the treatment of enlargement of liver and spleen, inflammation of stomach, sore throat, earache, headache, fever, rheumatism and cancer. It is useful for the treatment of dysentery, profuse menses, leucorrhoea, blood purifier and jaundice. It is prescribed for the treatment of psoriasis, herpes, severe burning and ulcer. It is used as a vegetable.

75. ***Solanum surattense*** Burm.
Local name: Kanderi
Ethnobotanical uses: It is used as blood purifier, anti-epileptic, anti-hysteria, expectorant, appetizer, hair tonic and anti - inflammatory. Leaves are juicy along with

Piper nigrum is administered for the treatment of sterility in women and it increases the chance of conception. It is useful for the treatment of hypertension, bronchial construction and asthma. The powder of the plant is useful for hepatitis, dyspepsia, flatulence, anorexia and fever.

76. *Withania somnifera* Dunal.
Local name: Aksin
Ethnobotanical uses: Its paste is locally applied on hard tumors, and boils of skin. It is also used to reduce pain and inflammations from inflamed joints. The remedy is used in general weakness, sexual debility and nervine weakness. Roots and tubers are aphrodisiac and nervine tonic. It is used for the treatment of reducing blood sugar and cholesterol levels, and had a diuretic effect.

32. Tamaricaceae:

77. *Tamarix aphylla* (Linn.) Lanza
Local name: Okan, Frash
Ethnobotanical uses: The bark and gall of the plant are used as an astringent, aphrodisiac and tonic. They are used for the treatment of eczema and other skin diseases, and unhealthy skin. This treatment is useful against hepatitis, jaundice and dyspepsia. The plant is extensively grazed by the camels and cattle. Timber is used as building material by the local inhabitants. The plant is also used as fuel wood, shelter belts, erosion control, and sand dune stabilisation.

78. *Tamarix dioica* Roxb.
Local name: Jhao, Lai
Ethnobotanical uses: Bark powder is externally used on ulcers, burns, piles and inflammation. The bark is useful in diarrhea, dysentery, intestinal affection and cough. The galls are used for diarrhea, dysentery, cough, leucorrhoea, spleen affection and leucoderma. The ash powder is effective in jaundice, liver disorders, infectious hepatitis. The plant is used as a fuel wood and for grazing purposes as well.

33. Tiliaceae

79. *Corchorus depressus* (Linn.) Stocks
Local name: Bauo-phali
Ethnobotanical uses: Traditionally used for the treatment of premature ejaculation, night fall, azoospermia and impotency. The infusion is useful in hepatitis, jaundice, burning sensation in all body and burning urination.

80. *Corchorus trilocularis* Linn.
Local name: Bari bauo-phali
Ethnobotanical uses: It is use in skin disease like eczema and boils. It is beneficial in urinary tract infection, vertigo and headache.

33. Verbenaceae

81. *Phyla nodiflora* (Linn.) Rich.
Local name: Bhukan buti
Ethnobotanical uses: It is traditionally used in dyspepsia, constipation and colic in children. The decoction of whole plant is prescribed for the treatment of easy delivery and excreta the lochia (Discharge of fluid from vagina after childbirth) women. It is used in chronic fever, boils; chronic ulcers band swollen cervical glands.

34. Zygophyllaceae

82. *Fagonia bruguieri* var. *laxa*
Local name: Dhamansa, dhamarn
Ethnobotanical uses: The plant is bitter and used for the treatment of fever, thirst, vomiting, dysentery, asthma and urinary discharges, liver trouble, chronic hepatitis, typhoid, toothache, stomach troubles and skin diseases. The plant is used as prophylactic against small pox. Boiled residue of the plant in water is used for abortion. Externally applied is as a poultice on carbuncles and other swellings of glands. Leaves and twigs are used in snakebite. The plant powder is prescribed for the treatment of gastritis, dyspepsia, flatulence and vomiting.

83. *Tribulus longipetalus* Viv.
Local name: Bakhri
Ethnobotanical uses: It is used to cure night fall, pre-mature ejaculation and sexual debility. The plant is aphrodisiac, diuretic, demulcent and tonic. It is used for the treatment of burning urination, chronic calculus affections and kidney infection and kidney stones. Seeds are used for the treatment of respiratory infection, cough, heart troubles and temporary relief of asthma.

84. *Tribulus terrestris* Linn.
Local name: Bakhra

Ethnobotanical uses: It is very useful for renal stones and is used against burning urination, blood in urine and bladder stones. It is used for the treatment of sexual debility. It is useful for the treatment of aphrodisiac and tonic. It is used for the treatment of night fall, chronic calculus affections and urinary disorders. The seeds are used with cow milk in debility and general weakness.

4. Discussion

Lal Suhanra National Park, distinguished by its unique topography and habitat heterogeneity, is comprised of three different ecosystems namely irrigated forest plantation, desert area/dry land and pond area respectively. These ecosystems are characterized by different types of vegetation as Irrigated Plantation, Tropical Thorne Forest and Riverine Forests. Beside other natural resources, the area also reflects enormous plant diversity. These studies revealed that the inhabitants are very well familiar with diversity of the medicinal plant and now the use of these diversified medicinal plants has been extended even to the national level. It has become a common treatment for their ailments on the one hand and also serves the purpose of their everyday requirement of food, fodder, shelter, fuel wood and timber. It was observed that the local people are least concerned about the conservation status of these natural

resources and exploit them ruthlessly even sometimes to the level of their extinction. Therefore, the study area is facing a severe threat of anthropogenic interference that is entirely destructive for the endemic plant species of the study area. Over-grazing by their livestock, grazing at the germination stage of the National Park flora, excessive vegetation cutting for fuel wood not only for house hold use but for commercial purpose as well have been observed the most common harmful activities. It is strongly recommended that immediate initiatives must be taken for the conservation of plant diversity of the National Park by the government agencies, NGO's, nomad population and local stake holders for the sustainable development of endemic plant species.

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