

TRADITIONAL HERBAL REMEDIES USED IN SIKKIM, INDIA

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ABSTRACT

The paper deals with the 225 different uses of 167 plant species belonging to 84 families for the treatment of 27 major ailments among ten rural communities of Sikkim. All the gathered information were based on the herbal practices of selective representative villages of Sikkim. During the collection of information, traditional uses pattern, parts used for, mode of preparation and administration of doses were also discussed. Out of the total uses of plants, herbs constitute c. 50% , trees by 25% and shrubs by 17%, while climbers constitutes the lowest habitat category (8%). Most herbal medicines were used in the form of paste of the plant or of a particular part. The other modes of uses were decoction, powder or inhalations etc. Remedies for common ailments were known to all households, while medicines or doses for critical ailments were taken as per the advice of the herbal healers or *Jakris*. The present study also indicated that the region harbors a high diversity of medicinal plants. A list of 167 plant species along with their Local name, habit, flowering and fruiting period, plant part/s used, medicinal properties and the mode of use are also enumerated.

Keywords: Herbal remedy, Medicinal plants, Traditional knowledge.

INTRODUCTION

The traditional societies throughout the world possess vast knowledge regarding the use of plants. Folk medicines constitute the basic parameter to develop the modern health care system (Balick & Cox, 1996). About 64% of the global population depends directly on traditional medicines for their health care system (Farnsworth, 1994; Steenkamp, 2003; Sheldon & al., 1997); while in India about 75-80% of population depends upon the traditional folk medicines (Hebbar & al., 2004; Nagarguna & Rao, 1990; Jain & al., 2004; Jain & Saklani, 1991; Katewa & al., 2004; Dash & Mishra, 1998, 2002). Majority of folk medicines have remained confined to certain region or to certain tribes of India (Dash, 1994).

The traditional knowledge of medicinal plants survives only by words of mouth from generation to generations (Dash & Misra, 1997; Shrestha & Dhillon, 2003; Figueiredo & al., 1993; Tabuti & al., 2003). Till today the different methods of preparation of drugs, dosages etc. have remained secret to a family or clan. Unfortunately, such valuable knowledge are vanishing rapidly due to the change of cultural values of traditional societies (Caniago and Siebert, 1998) and non exchange of ideas and exposure to modern health care systems (Plotkin, 1988; Leach, 1994; Dash, 1994).

Traditional use of plants is a part of the cultural heritage of the people in Sikkim (Hajra & Chakraborty, 1981; Bennet, 1983, 1985; Krishna & Singh, 1987; Kumar & al., 1994; Rai & Sharma, 1994; Singh & Chauhan, 1997; Jana & Chauhan, 2000). Traditional herbal healers in Sikkim are known as *Lamas* (The monastery heads) or *Jakris* by the local people. Mostly the plants are recommended by the elderly people of the village or the headman of the monastery. All the herbal healers do not recommend medicines for all ailments, but there are different specialists for recommending different diseases and persons, for example, *Jakris* specialize in children diseases and medico religious problems, *Lamas* expertise in woman and other herbal remedies. Not only the rural mass but also the good number of urban population also depends on the herbal remedies in Sikkim (Dash & al., 2003). Most interestingly, one plant may be used for different remedies in different combinations and different doses. The present paper emphasizes the traditional uses of plants by the different tribes of Sikkim for treating different ailments.

STUDY AREA

The state of Sikkim one of the smallest north-east States of India is situated in the Western flank of Eastern Himalaya and lies in between 27°10" to 28°9" N and 87°59" to 88°56" E. This encompasses an area of 7096 sq km. The State is bounded by Nepal in the West, Bhutan in the South-east, Tibet in the North and the districts of Darjeeling (West Bengal) in the South. The mountain chains which run southward from the main Himalayan ranges form the natural boundaries of Sikkim. The area is inhabited by number of ethnic groups including its aboriginals *Lepchas*, *Bhutia*, *Nepali*, *Limbu*, *Serpa*, *Sikkimese* communities. Wide range of topography, varied climatic condition and high annual precipitation makes the state of Sikkim one of the richest phyto-geographic regions of India. Above 44.07% of the total geographic area of the state is under forest, out of which 34.16% (2424 sq km) is under dense forest cover and 9.91 % (703 sq km) is under open forest. It is estimated that about more than 26% of the flowering plants of India are found in this 0.2% of the total geographic region of the country. (Dash & Singh, 2002). About 5000 species of vascular plants occur in this region (Singh & Chauhan, 1999).

The Villages

The field study was carried out in the villages of Rongli, Phodomchen and Gnathang of East district; Yuksum and Ravangla of West district; Lachen, Lachung and Chungthang of North district; Namchi and Tendong of south district. The elevation of the selected villages ranges from 1500 to 3700 m. Rongli and Namchi situated at 1500 m, Phodomchen, Chungthang and Yuksum situated at 2000 m, Lachen and Lachung situated at 2400 - 2600 m, while Gnathang situated at 3700 m height. In all the villages different ethnic communities dominated. The terrain is characterised by steep hill slopes or valleys and the households are scattered and consisting of hamlets. The climate of the area is characterised by a prolonged winter and rainy season with a short and pleasing summer. The state receives rainfall of 200 - 500 cm. Lower hills and valleys enjoys a subtropical climate, warm in winter, hot and humid in summer.

Vegetation of the Area

Depending upon the altitudinal variation, the vegetation of the State can be divided into the tropical (up to 900 m), sub-tropical (900 - 1500), temperate (1500 - 3500 m) and alpine (3500-4500 m). All the studied villages fall between the subtropical to sub-alpine regions. Sub tropical vegetation is mixed and comprises of *Adina cordifolia*, *Callicarpa arborea*, *Castanopsis indica*, *Fraxinus floribunda*, *Macaranga denticulata* etc., Dominant elements of temperate forests are *Alnus nepalensis*, *Acer campbelli*, *Engelhardtia spicata*, *Juglans regia* and spp. from *Quercus*. While the alpine vegetation is dominated by shrubby species of *Rhododendron*, *Berberis*, *Cotoneaster*, *Gaultheria*.

METHODOLOGY

Ethno-botanical information was collected during the year 1997 - 2002. Both qualitative as well as the quantitative information regarding the use of plants were collected through individual interviews as well as participatory rural appraisal (PRA) method. Open ended and structured interviews were conducted with questionnaire for the collection of data on Local names, uses, Parts used and mode of preparation and administration. During the interviews, free listing of information were made about a particular topic, disease and a specific plants used for. During the PRA study, different groups of people were interviewed independently and each group was allowed to give their own opinion about the herbal remedies. Each group was asked to make a preference ranking of the uses of plant, when a particular plant is being used for different diseases. People were asked to assign mean numerical values to a plant species according to their perceived significance. The details regarding the method of preparations of various doses were discussed elaborately and documented. The plant specimens collected, were later processed, identified (Hara & al., 1978, 1982; Hara & Williams, 1979; Polunin & Stainton, 1984; Grierson & Long, 1983 - 1987) and deposited in the Herbarium, Botanical Survey of India, Sikkim Himalayan Circle, Gangtok (BSHC).

Enumeration of the medicinal plants and their uses.

1. Abelmoschus manihot (L.) Medic. (Malvaceae); *S.S.Dash* 17644, 21164.

Local name: Janglii bhindi.

Parts used: Root.

Therapeutic use(s): Chronic cold and cough.

Mode of use and dose: Root decoction is taken orally with salt to cure sour throat and running nose.

2. Abies densa Griff. (Pinaceae); *S.S.Dash* 24034, 16210(a).

Local name: Gobresaalla.

Parts used: Bark, Cones.

Therapeutic use(s): i. Toothache, diuretic; ii. Emmenagogue.

Mode of use and dose: i. Bark powder brushed with finger to get rid of toothache. ii. Strong decoction of the cones are taken orally to reduce white discharge after menstruation. This also reduces the bad odour of urine.

3. Abroma augusta L. (Sterculiaceae); *S.S.Dash* 19718.

Local name: Kapasi.

Parts used: Bark and Flowers.

Therapeutic use(s): Menstrual disorders.

Mode of use and dose: Paste of about 10 gm of bark and 2/3 flowers taken orally to regularize menses.

4. Abrus precatorius L. (Fabaceae); *S.S.Dash* 10783.

Local name: Lallgeri.

Parts used: i. Seed; ii. Leaf.

Therapeutic use(s): i. Emmenagogue, abortifacient; ii. Cough and cold.

Mode of use and dose: i. About 7/8 seeds are ground into paste and mixed with 100 ml of fresh goat milk. The whole mixture is kept in a wooden vessel and left for 12 hours. The mixture is taken orally in empty stomach to cure menstrual disorders. Concentrated paste taken orally for abortion. ii. Smoke of dried leaves inhaled to clear nasal congestion.

5. Achyranthes bidentata Blume (Amaranthaceae) *S.S.Dash* 20703.

Local name : not known.

Parts used: Whole plant.

Therapeutic use(s): Piles, skin eruptions.

Mode of use and dose: Fresh plants paste is applied externally to cure pile and to reduce pain. The paste is also applied to cure skin eruptions.

6. Aconitum ferox Wall. ex Ser. (Ranunculaceae); *S.S.Dash* 27225.

Local name: Bikhuma.

Parts used: Root.

Therapeutic use(s): Rheumatism.

Mode of use and dose: About one gm of root paste is taken orally twice a day for one month to cure rheumatic pains.

7. Aconitum heterophyllum Wall. ex Royle (Ranunculaceae); *S.S.Dash* 27227.

Local name: Bikh.

Parts used: i. Dried root; ii. Rhizome.

Therapeutic use(s): i. Blood dysentery, anthelmintic; ii. Epilepsy.

Mode of use and dose: About 5gm. of root paste is taken orally to cure blood dysentery and to expel worms. Excess dose proves fatal. ii. Rhizome paste is made into small tablets of 5mg each. One tablet twice a day taken orally to cure mental depression and headache.

8. Acoros calamus L. (Acoraceae); *S.S.Dash* 22082.

Local name: Bojo.

Parts used: Rhizome.

Therapeutic use(s): i. Cough and fever; ii. Dysentery.

Mode of use and dose: i. Decoction of the root is taken orally to cure cough and fever. ii. A piece of rhizome is chewed to cure dysentery.

9. Ageratum conyzoides L. (Asteraceae); *S.S.Dash* 22053.

Local name: Ilamey.

Parts used: Leaves.

Therapeutic use(s): Antiseptic.

Mode of use and dose: Fresh leaf paste is applied on cuts and wounds as antiseptic.

10. Agrimonia pilosa Ledeb. (Saxifragaceae); *S.S.Dash* 24354.

Local name: Kukrapankha.

Parts used: Root.

Therapeutic use(s): Gastric disorders, blood dysentery.

Mode of use and dose: Root decoction is taken orally to cure gastric disorders. Root paste is taken orally to cure blood dysentery.

11. Ainsliaea latifolia (D.Don) Sch.- Bip. (Asteraceae); *S.S.Dash* 24101.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Stomachache.

Mode of use and dose: Root paste after dilution with warm water taken orally for stomachache caused due to indigestion.

12. Ajuga bracteosa Wall. ex Benth. (Lamiaceae); *S.S.Dash* 22785.

Local name: Ratipa.

Parts used: i. Root; ii. Plant paste.

Therapeutic use(s): Urinary disorder; ii. Boils, Carbuncles, Purgative.

Mode of use and dose: i. Decoction of the root taken orally to cure urinary disorders and burning sensation during urination. ii. Decoction of root is also taken orally to cure hangover caused due to over consumption of liquor. iii. Plant paste is mixed with flour of ragi locally known as Kodu and applied around the boils and carbuncles to facilitate easy burst.

13. Alangium chinense (Lour.) Harms. (Alangiaceae), BSHC 2168.

Local name: Okhne.

Parts used: Shoot and root.

Therapeutic use(s): Emmenagogue.

Mode of use and dose: The tender shoots and roots in equal quantity mixed with 5-7 black pepper and crushed to a paste. Pills of 5 gm each are prepared from the paste and one pill daily for 15 days taken orally to regularize the menses.

14. Alstonia scholaris R.Br. (Apocyanaceae) ; S.S.Dash 21118.

Local name: Chatiwan.

Parts used: Shoot.

Therapeutic use(s): Galactagogue, (enhances milk flow).

Mode of use and dose: About 100 ml of strong decoction of tender shoot is cooled and given orally in empty stomach to new mothers for easy flow of milk.

15. Amaranthus spinosus L. (Amaranthaceae) BSHC 1657.

Local name: Ginegi.

Parts used: Root.

Therapeutic use(s): Amenorrhoea.

Mode of use and dose: i. One teaspoon of the root paste is administered orally to regularize menstrual disorders. ii. The root is cooked with the banana pith and taken orally to alleviate abdominal pains during menstruation.

16. Ammomum subulatum Roxb. (Zingiberaceae); S.S.Dash 20578.

Local name: Bada elachi.

Parts used: Fruit.

Therapeutic use(s): Cold & cough.

Mode of use and dose: About 5 gm of fruits paste is taken orally 4 times a day to cure sour throat and cold.

17. Anemone rivularis Buch. Ham. ex DC. (Ranunculaceae); S.S.Dash 22752.

Local name: Supka.

Parts used: Leaf and shoot.

Therapeutic use(s): Veterinary use.

Mode of use and dose: The paste of above ground part is applied externally on yaks to get relief from flies and other insects.

18. Anaphalis contorta Hook.f. (Asteraceae); S.S.Dash 24009.

Local name: Not known.

Parts used: Flower.

Therapeutic use(s): Styptic.

Mode of use and dose: Flower paste is applied on bleeding wounds as an antiseptic.

19. Aphanamixis polystachya (Wall.) Parker (Meliaceae); S.S.Dash 22090.

Local name: Lahasune.

Parts used: i. Seed; ii. Bark.

Therapeutic use(s): i. Anthelmintic; ii. Abdominal pain before delivery, health tonic.

Mode of use and dose: i. Seed paste is given orally to children to cure stomachache and expelling intestinal worms. ii. Decoction of the bark is given orally to get relief from abdominal pain and stretching pain after delivery. Two teaspoons of the decoction is mixed with mild and taken orally as a health tonic after delivery.

20. *Artemisia nilagirica* (C.B.Clarke) Pamp. (Asteraceae); S.S.Dash 22852.

Local name: Titeypati.

Parts used: i. Leaves; ii. Leafy inflorescence.

Therapeutic use(s): i. Vermifuge for children; ii. Antiseptic; iii. Nose bleeding.

Mode of use and dose: i. Leave paste is diluted with water and given orally in the evening to expel intestinal worm. ii. Two to three teaspoons of thick decoction of leafy inflorescence given orally to cure fever. iii. Leaves are crushed in hands and inserted in the nasal cavity to stop nose bleeding due to altitudinal effect. The juice of the leaf also used as an antiseptic in external cuts and wounds.

21. *Astilbe rivularis* D.Don (Saxifragaceae) S.S.Dash 20926, 24135.

Local name: Boro okhati.

Parts used: i. Rhizome; ii. Stem + Root.

Therapeutic use(s): i. Gynecological disorders; ii. Body ache.

Mode of use and dose: i. Decoction of the rhizome is given orally to cure bad odour discharges during menses. ii. The decoction of the stem and root is given orally or mixed with the bathing water to cure general body ache. This dose is given to new mothers particularly.

22. *Begonia cathcartii* Hook.f. & Thomson (Begoniaceae); S.S.Dash 20712.

Local name: Not known.

Parts used: Whole plant.

Therapeutic use(s): Febrifuge.

Mode of use and dose: Two teaspoon of the plant paste mixed with warm milk and taken orally to reduce body temperature and to cure fever.

23. *Belamcanda chinensis* DC. (Iridaceae); S.S. Dash 18775.

Local name: Tarwarphula Root.

Parts used: Root.

Therapeutic use(s): Constipation.

Mode of use and dose: Raw roots are chewed in the evening to cure constipation.

24. *Berberis aristata* DC. (Berberidaceae); S.S.Dash 27008.

Local name: Not known.

Parts used: Root and bark.

Therapeutic use(s): Conjunctivitis.

Mode of use and dose: The juice of the root and bark is mixed in equal proportion and applied externally on eyes for 15 minutes to cure conjunctives. Eyes should be washed properly after 15 minutes.

25. *Berberis wallichiana* DC. (Berberiaceae); S.S.Dash 22776.

Local name: Chitrokanra.

Parts used: Fruits.

Therapeutic use(s): Dog bite, antidotes.

Mode of use and dose: Fruit paste is given orally in case of dog bite and also applied externally on affected parts to neutralize the toxic effect.

26. *Bergenia purpurascens* (Hook. f. & Thomson) Engl. (Saxiaginaceae); *S.S.Dash* 27221.

Local name: Pakhan bet.

Parts used: Root.

Therapeutic use(s): Stomachache, pneumonia and inflammation in tonsil.

Mode of use and dose: i. Small piece of the root is crushed and the juice is taken orally to cure stomachache. The paste of the root is taken orally to cure pneumonia. ii. The decoction of the root is gargled to cure inflammation in tonsils and throat infections.

27. *Bergenia ciliata* (Haworth) Sternb. (Saxiaginaceae); *BSHC* 5380.

Local name: Pakhanbet.

Parts used: i. Rhizome; ii. Whole plant.

Therapeutic use(s): i. Diarrhoea and vomiting; ii. Leucorrhoea.

Mode of use and dose: i. Fresh root paste mixed with warm water and given orally to check diarrhoea and vomiting. ii. About 10 gm of the plant paste is given orally to check white discharge.

28. *Betula alnoides* Buch.-Ham. (Betulaceae); *S.S.Dash* 24019.

Local name: Sour.

Parts used: i. Bark paste; ii. Stem bark.

Therapeutic use(s): i. Body ache and sprain; ii. Liver disorder, antiseptic.

Mode of use and dose: i. Bark paste is applied externally to alleviate pain. ii. About 30 ml of the bark decoction is taken orally in empty stomach to cure bile related ailments and acidity.

29. *Betula utilis* D. Don (Betulaceae); *S.S.Dash* 22751.

Local name: Bhojpata.

Parts used: Bark.

Therapeutic use(s): Bronchitis.

Mode of use and dose: 10 ml of bark juice is taken orally to cure bronchitis and cough.

30. *Bidens pilosa* L. (Asteraceae); *S.S.Dash* 22051.

Local name: Kuro.

Parts used: Leaves.

Therapeutic use(s): i. Herbal bath for body ache; ii. Earache.

Mode of use and dose: i. Fresh leaf of the plant is kept in hot water for one hour, then the warm water is used for bathing to cure general bodyache. ii. Four to five drops of the fresh leaf juice is dropped in each ear to cure earache and pus in the ear.

31. *Bischofia javanica* Blume (Nyssaceae); *S.S.Dash* 18774.

Local name: Kainjal.

Parts used: Bark, Seed.

Therapeutic use(s): Muscular pain and inflammation.

Mode of use and dose: Paste of bark and seeds (mixed in 1:2) is applied externally to cure muscular pain and inflammation.

32. Bistorta affinis (D. Don) Green (Polygonaceae); *S.S.Dash* 27292.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): i. Anodyne; ii. Astringent.

Mode of use and dose: i. Root paste is applied externally around the affected areas to get relief from pain and to reduce inflammations. ii. Root paste applied on external injuries to stop bleeding.

33. Bistorta vivipara (L.) Gray (Polygonaceae); *S.S.Dash* 22719.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): i. Astringent; ii. Sore throat and cold.

Mode of use and dose: i. Root paste is applied externally to stop bleeding. ii. Decoction of the root is gargled to cure sore throat and cold.

34. Boenninghausenia albiflora (Hook.)Reichb. (Rutaceae); *S.S.Dash* 20729.

Local name: Yerma shing.

Parts used: Leaves.

Therapeutic use(s): Anti-inflammatory.

Mode of use and dose: Leaf paste is applied around the inflammatory part to get a quick relief from pain and swelling.

35. Bombax ceiba L. (Bombacaceae); *BSHC* 8515.

Local name: Simal.

Parts used: Bark, Root bark.

Therapeutic use(s): i. Diuretic; ii. Emmenagogue.

Mode of use and dose: i. Decoction of the bark is taken orally daily for 7 days to cure burning sensation during urination. ii. The bark of the root is crushed into paste with garlic and taken orally twice a day for 7 days to regularize menses.

36. Brugmansia suaveolens Bercht & Presl (Solanaceae); *S.S.Dash* 18878.

Local name: Dhokrey Phul.

Parts used: Leaves.

Therapeutic use(s): Cough & Cold.

Mode of use and dose: Leaf paste is tied in a clean cloth and squeezed in nasal cavity to clear nasal congestion and sinusitis.

37. Buddleja asiatica Lour. (Buddlejaceae); *S.S.Dash* 23813.

Local name: Sanapati.

Parts used: Leaf.

Therapeutic use(s): Headache, fore head pain.

Mode of use and dose: Leaf paste is applied externally on fore head to cure headache.

38. Butea monosperma (Lam.) Taub. (Leguminosae-Papilionoideae)

Local name: Palase, Mauwa.

Parts used: i. Stem bark + Leaf, Seed.

Therapeutic use(s): i. Contraceptive; ii. Amenorrhoea.

Mode of use and dose: i. Stem bark along with the tender leaves crushed into paste. The paste is fried with butter. One tea spoon of the paste is taken orally daily in the evening as contraceptive.

ii. One teaspoon of seed paste diluted in cow milk and taken orally daily in the evening as contraceptive. Bark One teaspoon of bark paste is diluted in milk and taken orally to regularize menses.

39. Caesalpinia bonduc Roxb. (Leguminosae subfam. Caesalpinioideae);

Local name: Nicker Ruk.

Parts used: Seed.

Therapeutic use(s): Emmenagogue and Amenorrhoea.

Mode of use and dose: About 50 gm of seeds are ground with about 40 gm. dried roots of *Brassica juncea* L. and a paste is made out of this. One teaspoon of the paste is taken orally twice a day to regularize menses.

40. Callicarpa arborea Roxb. (Verbenaceae); BSHC 11343.

Local name: Guenyhlo.

Parts used: Bark.

Therapeutic use(s): Gastric trouble.

Mode of use and dose: Fresh bark is kept in water for one night and the water is taken orally to cure gastric troubles.

41. Caltha palustris L. (Ranunculaceae); S.S.Dash 22721.

Local name: Not known.

Parts used: Whole plant.

Therapeutic use(s): Rheumatic pains.

Mode of use and dose: Plant paste is applied externally on affected parts to get relief from pain and swelling.

42. Campylandra aurantiaca Baker (Zingiberaceae); S.K. Rai 3629.

Local name: Nakima.

Parts used: Flowers.

Therapeutic use(s): Body ache after delivery.

Mode of use and dose: Fresh flowers of the plant is kept in hot water for one hour, then the warm water is used for bathing to cure general bodyache as a post delivery measure.

43. Cannabis sativa L. (Cannabinaceae); S.S.Dash 13781.

Local name: Ganja.

Parts used: Inflorescence.

Therapeutic use(s): Stomachache due to indigestion.

Mode of use and dose: 10 gm of the paste of the inflorescence is taken orally to cure stomachache due to indigestion.

44. *Capsella bursa-pastoris* (L.) Moench (Brassicaceae); S.S.Dash 18074.

Local name: Shepherds purse (E).

Parts used: Whole plant.

Therapeutic use(s): Hemorrhage, veterinary.

Mode of use and dose: Plant paste applied externally to stop bleeding in cattle and other domestic animals.

45. *Cassia fistula* L. (Caesalpiniaceae); S.K.Rai 11901.

Local name: Raj Birse, Sunala.

Parts used: Root.

Therapeutic use(s): Rheumatism.

Mode of use and dose: Decoction of the root is taken orally to cure inflammation due to rheumatism.

46. *Centella asiatica* (L.) Urban (Apiaceae); S.S.Dash 20705.

Local name: Golpata.

Parts used: i. Aerial parts; ii. Flowers.

Therapeutic use(s): i. Hypertension; ii. Antiseptic.

Mode of use and dose: i. Stem of the plant is chewed for half an hour to cure hypertension. ii. Flower paste is applied around wounds of cattle to speedy recovery.

47. *Cinnamomum tamala* Nees (Lauraceae); S.S.Dash 19297.

Local name: Tejpata.

Parts used: Bark.

Therapeutic use(s): Diarrhoea.

Mode of use and dose: Equal amount of the bark and the tender leaves of *Psidium juajava* is mixed and made in to a paste. About 10 mg of paste is taken orally to cure diarrhoea.

48. *Circaea alpina* L. (Onagraceae); S.S.Dash 25436.

Local name: Not known.

Parts used: Whole plant.

Therapeutic use(s): Antiseptic; Styptic.

Mode of use and dose: Plant paste is applied externally on bleeding wounds for stop bleeding and rapid recovery.

49. *Cissampelos pareira* L. (Menispermaceae); S.S.Dash 21492.

Local name: Tamarkey.

Parts used: Stem.

Therapeutic use(s): Stomachache, liver disorder.

Mode of use and dose: Small piece of the stem is chewed for half an hour to cure stomachache due to excessive bile. This also checks vomiting tendency due to acidity.

50. *Clematis buchananiana* DC. (Ranunculaceae); S.S.Dash 20786.

Local name: Pinasi lahar.

Parts used: i. Root; ii. Plant decoction.

Therapeutic use(s): i. Nasal congestion, sinusitis; ii. Eczema and fungal infections.

Mode of use and dose: i. Small piece of the root is crushed and inhaled in every half an hour interval to clear nasal congestion and sinusitis. ii. Hot plant decoction of the plant is used to wash regularly the affected areas to cure eczema and other fungal infections.

51. Clematis wightiana Wall. (Ranunculaceae); *S.S.Dash* 22701.

Local name: Pinesey lahara.

Parts used: i. Root; ii. Bark + Leaf.

Therapeutic use(s): i. Indigestion; ii. Nasal congestion and sinusitis.

Mode of use and dose: i. About 5 ml of root decoction is taken orally in every half an hour to cure indigestion and flatulent. ii. Equal amount of the stem bark and leaf is crushed and tied in a clean cloth. The cloth is squeezed and one to two drops of the juice sap is dropped in the nasal cavity to cure nasal congestion and sinusitis.

52. Cleome viscosa L. (Capparaceae); *BSHC* 23456.

Local name: Harhare.

Parts used: Tender shoot.

Therapeutic use(s): Galactagogue.

Mode of use and dose: bout 250 gm of tender shoots are boiled to make a strong decoction. 2-3 teaspoon of this decoction is given orally for 3-4 times a day to breast feeding mothers for better lactation.

53. Clerodendrum infortunatum Gaertn. (Verbenaceae); *S.S.Dash* 22047.

Local name: Chitu Banker.

Parts used: Root.

Therapeutic use(s): Abdominal pain during mense.

Mode of use and dose: One teaspoon of root paste is taken orally to alleviate acute abdominal pain during menstruation. The prescription is very much effective for teen aged girls.

54. Clinopodium umbosum (Bieb.) Koch. (Lamiaceae); *S.S.Dash* 22804.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Antiseptic.

Mode of use and dose: Leaf juice is applied externally as antiseptic.

55. Coelogyne fuscescens Lendley (Orchidaceae); *S.S.Dash* 22038.

Local name: Sunakhadi.

Parts used: Pseudo bulb.

Therapeutic use(s): Stomach ailment.

Mode of use and dose: Five to six pseudo bulbs are grounded in to paste and spread over a clean cloth and dried in sun. The cakes like things are chewed to cure stomach ailments.

56. Coix lachryma-jobi L. (Poaceae); *S.S.Dash* 20939.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Urinary disorder.

Mode of use and dose: About 50 gm. of the root is boiled in 5lts of water to make a decoction. About 50 ml of the decoction is taken orally twice a day for 7 days to cure urinary infections and burning sensation during urination.

57. Colebrookea oppositifolia Sm. (Lamiaceae); *BSHC* 15316.

Local name: Dhusro.

Parts used: Leaves.

Therapeutic use(s): Antiseptic.

Mode of use and dose: Leaf paste is applied externally as antiseptic.

58. Commelina benghalensis L. (Commelinaceae); *N.R Mandal* 11901.

Local name: Kanijhar.

Parts used: Leaf.

Therapeutic use(s): Antiseptic.

Mode of use and dose: Leaf paste is applied externally as antiseptic.

59. Costus speciosus (Koenig) Sm. (Costaceae); *BSHC* 15801.

Local name: Betlauri.

Parts used: Rhizome.

Therapeutic use(s): i. Breast swelling; ii. Health Tonic.

Mode of use and dose: i. About 25 gm of rhizome is grounded to paste and cooked. Warm paste of the rhizome is given orally after delivery to reduce pain in breast and for easy flow of milk. ii. One teaspoon of sun dried root powders is mixed with Rum or *chaang* (local beer) and given orally as a health tonic after delivery.

60. Croton caudatus Geiseler (Euphorbiaceae); *BSHC* 7177.

Local name: Holonre.

Parts used: Bark.

Therapeutic use(s): Contraceptive.

Mode of use and dose: Stem bark is crushed with equal amount of *Curcuma longa* L. and *Piper longum* L. and made into a paste. One teaspoon of paste is taken orally daily in the evening as contraceptive.

61. Cuscuta reflexa Roxb. (Cuscutaceae); *S.S.Dash* 22097.

Local name: Binajarhi.

Parts used: i. Whole plants; ii. Stem.

Therapeutic use(s): i. Anodyne; ii. Leucorrhoea.

Mode of use and dose: i. Stem paste is applied externally around the swollen parts to get relief from pain. ii. Equal amount of stem and leaves of *Cerastium* spp. is crushed in to a paste. About 10 gm of the paste is taken orally twice a day for 15 days to cure white discharge in urine.

62. Cyathea spinulosa Wall. ex Hook. (Cyatheaceae); *BSHC* 5182.

Local name: Not known.

Parts used: Leaf pith.

Therapeutic use(s): Anodyne.

Mode of use and dose: The paste of the leaf pith applied externally to get relief from pain and inflammation.

63. *Dactylorhiza hatagirea* (D. Don) Soo (Orchidaceae); BSHC 22936.

Local name: Panchaule.

Parts used : Root, tuber.

Therapeutic use(s): Aphrodisiac.

Mode of use and dose: 5 gm of root/ tuber paste is taken orally daily in the evening as an enhancer of sexual stamina.

64. *Dalbergia latifolia* Roxb. (Fabaceae); S.S.Dash 14392.

Local name: Satisal.

Parts used: Bark.

Therapeutic use(s): Ovulation and Sexual potency.

Mode of use and dose: About 10 gm of the dried bark paste is taken orally twice a day for one month to increase sexual potency and for good ovulation.

65. *Daphne bhoolua* Buch.-Ham. ex D. Don (Thymeliaceae); S.S.Dash 20710.

Local name: Kagatey.

Parts used: Leaves and Seed.

Therapeutic use(s): Urinary disorders.

Mode of use and dose: Decoction of the leaf and seeds is mixed in equal proportion and taken orally to cure bad odor in urine and other urinary infection.

66. *Datura metel* L. (Solanaceae); S.K.Rai 13780.

Local name: Dhatura.

Parts used: Seed.

Therapeutic use(s): Against mad dog bite.

Mode of use and dose: Seed paste is given orally against mad dog bite. Precautions are to be taken during preparation of the doses as higher dose may cause insane.

67. *Dendrocalamus hamiltonii* Nees & Arn. (Poaceae); BSHC 697.

Local name: Tamaa.

Parts used: Leaves.

Therapeutic use(s): Menstrual disorder.

Mode of use and dose: Tender leaves are crushed with seeds of *Hibiscus cannabinus* L. (Nep. Posto) and made in to a paste. The paste is given orally twice or thrice a day to reduce the excessive bleeding during menstrual cycle.

68. *Desmodium elegans* DC. (Fabaceae); B.Mitra 6855.

Local name: Sarkinu.

Parts used: i. Root; ii. Fruit.

Therapeutic use(s): i. Expectorant; ii. Diuretic.

Mode of use and dose: i. Warm root decoction is gargled and taken orally to cure cough and also acts as an expectorant. ii. About 50 ml of the fruit decoction is taken orally in every 15 minutes to promote discharge of urine.

69. Dichroa febrifuga Lour. (Hydrangiaceae); *S.S.Dash* 20755.

Local name: Nilgeri, Basak.

Parts used: Leaves.

Therapeutic use(s): Febrifuge, Bodyache.

Mode of use and dose: Root paste is administered twice a day to cure fever and to get relief from the body pain.

70. Dichrocephala integrifolia (L.f.) O. Kuntze (Asteraceae); *S.S.Dash* 22069.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Astringent.

Mode of use and dose: Leaf paste is applied externally around fresh wounds to stop bleeding.

71. Didymocarpus pedicellata R. Br. (Gesneriaceae); *S.S.Dash* 20732.

Local name: Not known.

Parts used: Leaves.

Mode of use and dose: Antiseptic.

Mode of use and dose: Leaf paste is applied in cuts and wounds as antiseptic.

72. Dioscorea belophylla Viogl. ex Haines (Dioscoriaceae); *S.S.Dash* 22069.

Local name: Panu tarul, Githa tarul.

Parts used: Tubers.

Therapeutic use(s): Anodyne, anti inflammatory.

Mode of use and dose: Tuber paste is applied around the affected part to get relief from pain and inflammation.

73. Drymaria cordata Willd. (Caryophyllaceae); *S.S.Dash* 20758.

Local name: Abhijhal.

Parts used: Plant.

Therapeutic use(s): Viral fever, Sinusitis.

Mode of use and dose: out 10 gm of plant paste taken orally daily to cure chronic cough and cold. Plant paste is tied in a cloth, one or two drops of juice is squeezed in nasal cavity to cure sinusitis.

74. Elephantopus scaber L. (Asteraceae); *BSHC* 1137.

Local name: Godhi (H).

Parts used: Root.

Therapeutic use(s): Abdominal pain before and during delivery.

Mode of use and dose: Fresh root are made into fine paste and applied externally on lower abdomen during labour pain to facilitate easy delivery. This use also reduces prolonged labour pain.

75. Ephedra gerardiniana Wall. (Gnetaceae); *BSHC* 6013.

Local name: Tseing.

Parts used: Stem.

Therapeutic use(s): Bronchitis, respiratory problems.

Mode of use and dose: 5 ml of the stem juice is taken orally twice a day to cure bronchitis and other respiratory problems.

76. Equisetum diffusum D. Don (Equisetaceae); BSHC 32272.

Local name: Kurkure.

Parts used: Whole plant.

Therapeutic use(s): Skin rashes.

Mode of use and dose: The plant paste is applied externally around the affected parts to cure the skin rashes and other skin irritations.

77. Erythrina arborescens Roxb. (Fabaceae); S.S.Dash 22095.

Local name: Not known.

Parts used: Seed.

Therapeutic use(s): Rheumatic pains.

Mode of use and dose: Seed paste is applied around affected areas to reduce pain and inflammation.

78. Eupatorium adenophorum Spreng. (Asteraceae); S.S.Dash 18878.

Local name: Banmara.

Parts used: Leaf juice.

Therapeutic use(s): Swelling, Inflammation, Antiseptic.

Mode of use and dose: Leaf juice is mixed with the latex of any *Ficus* sp. and applied externally to cure swelling and inflammation of bones. The also acts as an antiseptic.

79. Eupatorium cannabinum L. (Asteraceae) ; S.S.Dash 24879.

Local name: Kalijhar, banmara.

Parts used: Leaves.

Therapeutic use(s): Styptic (Blood coagulate).

Mode of use and dose: Leaf paste applied on bleeding wounds to stop bleeding immediately.

80. Eurya acuminata DC. (Theaceae); S.S.Dash 20713.

Local name: Not known.

Parts used: i. Seed ii. Leaf paste.

Therapeutic use(s): i. Rheumatic pain; ii. Insect antidote.

Mode of use and dose: i. Fruit paste is applied around the affected parts to get relief from pain due to rheumatic. ii. Leaf paste is applied around the affected area and taken orally in case of insect biting. This application decreases the burning sensation.

81. Euphorbia hirta L. (Euphorbiaceae) BSHC 13349.

Local name: Dudhi.

Parts used: Whole plant.

Therapeutic use(s): Galactagogue.

Mode of use and dose: The whole plant along with the roots are washed carefully and grounded into paste. The paste is applied externally on and around breast for easy flow of milk and better lactation. The also reduce pain in the breast.

82. Ficus semicordata Buch.-Ham ex J.E..Smith (Moraceae); *S.S.Dash 21466*.

Local name: Rai khaniu.

Parts used: Bark.

Therapeutic use(s): Purgative.

Mode of use and dose: Bark paste is applied externally around boils and carbuncles for easy burst and reduce pain.

83. Floscopa scandens Lour (Commelinaceae); *S.S.Dash 19231*.

Local name: Kanejhar.

Parts used: Inflorescence.

Therapeutic use(s): Eye and ear drops.

Mode of use and dose: The inflorescence is crushed and wrapped in a wet cloth. Two to three drops of the juice is poured in ears to cure fungal infection and pain.

84. Fraxinus floribunda Wall. (Oleaceae); *BSHC 17994*.

Local name: Lnakoore.

Parts used: Bark.

Therapeutic use(s): Laxative.

Mode of use and dose: Bark decoction is taken orally in night to cure constipation.

85. Galinsoga parviflora Cav. (Asteraceae) ; *S.S.Dash 20706*.

Local name: Udase.

Parts used: Whole plant.

Therapeutic use(s): Antidote for insect bite.

Mode of use and dose: The plant is crushed and rubbed in the affected area to reduce burning sensation due to insect bite.

86. Gaultheria nummularioides D. Don (Ericaceae); *S.S.Dash 24045*

Local name: Shokpa.

Parts used: Leaves.

Therapeutic use(s): Laxative.

Mode of use and dose: About 100 ml of the leaf decoction is taken orally in night to cure constipation.

87. Girardinia diversiflora (Link.) Friis (Urticaceae).

Local name: Bhangresishnu.

Parts used: i. Whole plant; ii. Root paste.

Therapeutic use(s): i. Bronchitis, Tuberculosis; ii. To burst boils.

Mode of use and dose: i. Hot decoction of the whole plant is taken orally to cure bronchitis and also believed to cure tuberculosis. ii. Root paste is applied around the boils for easy burst and also to recover rapidly.

88. Gloriosa superba L. (Colchiaceae); *S.S.Dash 20456*.

Local name: Not known.

Parts used: Tuber.

Therapeutic use(s): i. Leucorrhoea; ii. Reduce pain and bleeding after delivery.

Mode of use and dose: One tea spoon of tuber paste is diluted in milk and given orally for seven days to regularize the menstrual cycle and to reduce excessive abnormal mucus discharge. ii. The tuber paste is applied externally on lower abdomens during labor pain to facilitate easy delivery and also easy release of placenta. This application after delivery reduces bleeding and pain due to stretching.

89. *Gmelina arborea* Roxb. (Verbenaceae); S.S.Dash 22341.

Local name: Khamari.

Parts used: i. Leaves; ii. Bark.

Therapeutic use(s): i. Febrifuge; ii. Demulcent, Scabies.

Mode of use and dose: Leaves decoction is taken orally to cure fever. ii. Bark paste is applied through out the body to cure scabies and irritation.

90. *Gynocardia odorata* R. Br. (Flacourtiaceae).

Local name: Badre phal.

Parts used: Seed.

Therapeutic use(s): Epilepsy.

Mode of use and dose: Seed paste is applied on the forehead to cure headache and epilepsy.

91. *Hedera nepalensis* Koch (Hydrangiaceae); S.S.Dash 20789.

Local name: Not known.

Parts used: i. Stems; ii. Leaves + Fruit.

Therapeutic use(s): i. Anthelmintic; ii. Stimulants.

Mode of use and dose: i. Stem bark is crushed into paste and about 5 gm. of paste taken orally with warm water expelling worms. ii. Equal amount of leaves and fruit paste mixed and taken orally as a sexual stimulant for women.

92. *Hedyotis scandens* Roxb. (Rubiaceae); S.S.Dash 20745.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Anodyne, anti-inflammatory.

Mode of use and dose: About 50 gm. of root bark is crushed into a paste and applied around the affected area reduce inflammation due to sprain. This application also reduces pain.

93. *Hedychium spicatum* Ham. ex Smith (Zingiberaceae).

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Stomach disorder and dysentery.

Mode of use and dose: Root paste is taken orally to cure dysentery due to indigestion. The dose also cures other stomach disorder.

94. *Hemiphragma heterophyllum* Wall. (Scrophulariaceae); S.S.Dash 24046.

Local name: Malajhar.

Parts used: Whole plant.

Therapeutic use(s): Pharyngitis and Inflammation of tonsils.

Mode of use and dose: Warm decoction of the plant is gargled to cure pharyngitis and inflammation of tonsils.

95. Heracleum wallichii DC. (Apiaceae); *S.S.Dash* 18427.

Local name: Chimpling.

Parts used: i. Fruits; ii. Root.

Therapeutic use(s): i. Cough and cold; ii. Body ache.

Mode of use and dose: i. Fruit paste is taken orally to cure cough and cold due to viral fever. ii. Root decoction is mixed with one bucket of water and used for bathing to cure general body pain.

96. Hippophae salicifolia D. Don (Elaeagnaceae); *S.S.Dash* 18954.

Local name: Not known.

Parts used: Fruits.

Therapeutic use(s): Throat and Tongue infection.

Mode of use and dose: Ripen fruit is chewed in mouth to cure throat and tongue infection.

97. Houttuynia cordata Thounb. (Saururaceae); *S.S.Dash* 20765.

Local name: Gandhejarh.

Parts used: i. Leaves; ii. Root.

Therapeutic use(s): i. Laxative; ii. Stomach disorders.

Mode of use and dose: i. Leaf paste taken orally to cure chronic constipation. ii. One tea spoon of the root paste is mixed with one glass of water and taken orally in the morning to flatulent.

98. Ilex diphylla Wall. (Aquifoliaceae); *BSHC* 25090.

Local name: Lisha.

Parts used: Leaves.

Therapeutic use(s): Diuretic.

Mode of use and dose: Leaf paste is taken orally to cure foul smell in urine and also to cure painful urination.

99. Iris clarki Hook. f. & Thomson (Iridaceae); *S.S.Dash* 20173.

Local name: Cema.

Parts used: Dried bulb.

Therapeutic use(s): Purgative.

Mode of use and dose: The dried bulb is grounded to a fine paste and applied around the external ulcer and carbuncle for rapid recovery.

100. Juglans regia L. (Juglandaceae); *S.S.Dash* 22702.

Local name: Okhar.

Parts used: Fruit coat.

Therapeutic use(s): Eczema.

Mode of use and dose: Paste of the fruit coat is applied externally around affected parts to cure eczema other skin ailments.

101. Juniperus recurva Buch.-Ham. (Cupressaceae); *S.S.Dash* 24004, 22769.

Local name: Dhupi.

Parts used: i. Fruits; ii. Root.

Therapeutic use(s): i. Stomach disorders; ii. Skin eruption.

Mode of use and dose: i. Fruit is boiled for an hour and kept for a night. The decoction is taken orally next morning to cure stomach disorders. ii. Root paste is applied externally to cure skin eruption during winter.

102. *Laportea terminalis* Wight (Urticaceae); S.S.Dash 22818.

Local name: Patley sisnu.

Parts used: Leaves.

Therapeutic use(s): Diuretic.

Mode of use and dose: About 5 gm of the plant paste is diluted in 100 ml of water and taken orally to cure urinary problem.

103. *Litsea cubela* Pers. (Lauraceae); S.S.Dash 22874.

Local name: Siltimmur.

Parts used: Fruits.

Therapeutic use(s): Stomachache.

Mode of use and dose: Fruit decoction is taken orally to cure stomachache due to indigestion.

104. *Lyonia ovalifolia* (Wall.) Drude (Ericaceae); S.S.Dash 22086.

Local name: Angeri.

Parts used: Shoots paste.

Therapeutic use(s): Scabies and Skin disorders.

Mode of use and dose: Leaf paste of before night is applied in the morning to cure skin diseases particularly itching sensation in the epidermal area.

105. *Maesa chisia* D. Don (Myrsinaceae); S.S.Dash 20710.

Local name: Bilaune.

Parts used: Fruits.

Therapeutic use(s): Veterinary.

Mode of use and dose: Equal amount of leaf and bark paste mixed and applied all over the body of domestic animals for relief from insects, worm and leech.

106. *Mahonia nepalensis* DC. (Berberidaceae); BSHC 28224.

Local name: Chitray.

Parts used: Fruits.

Therapeutic use(s): Diuretic, Urinary disorder.

Mode of use and dose: Fruit paste is diluted with water and taken orally to cure bad odour discharges and burning sensation during urination.

107. *Mallotus philippensis* DC. (Euphorbiaceae); BSHC 18055.

Local name: Sundare.

Parts used: Glandular hairs of fruits.

Therapeutic use(s): Vermifuge.

Mode of use and dose: The glandular hairs of the fruits are kept in water for an hour and taken orally twice a day for 7 days to expel worms from intestine

108. *Michelia doltsopa* L. (Magnoliaceae); *S.S.Dash* 14930.

Local name: Rani champ.

Parts used: Seed + Bark.

Therapeutic use(s): Contraceptive.

Mode of use and dose: 30 gm of seed and bark in equal amount mixed and grounded to paste. One to two teaspoon of the paste is taken orally in the evening as contraceptive.

109. *Murraya koenigii* (L.) Spreng. (Rutaceae); *BSHC* 365.

Local name: Curry pata.

Parts used: Leaf + Root.

Therapeutic use(s): Rheumatism, body ache.

Mode of use and dose: Equal amount of root and leaf is mixed and grounded to a paste. The paste is applied externally on affected parts to cure rheumatism and body ache.

110. *Nardostachys grandiflora* DC. (Valerianaceae); *BSHC* 8880.

Local name: Jatamansi.

Parts used: Root.

Therapeutic use(s): Spasmodic pain and hysteria.

Mode of use and dose: About 5 ml of root paste is diluted water and given orally to cure spasmodic pain.

111. *Nasturtium officinale* R. Br. (Brassicaceae); *S.S.Dash* 22002.

Local name: Simbrya.

Parts used: Whole Plant.

Therapeutic use(s): Cough.

Mode of use and dose: Plant decoction is taken orally to cure cough. This dose also acts as an expectorant.

112. *Ophiorrhiza treutleri* Hook. f. (Rubiaceae); *S.S.Dash* 20791.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Diuretic, Strangury.

Mode of use and dose: Leaf paste is diluted with water and taken orally thrice a day to cure burning sensation in urine.

113. *Oroxylum indicum* Vent. (Bignoniaceae); *S.S.Dash* 14442.

Local name: Totala.

Parts used: i. Bark + Seed; ii. Seed; iii. Root.

Therapeutic use(s): i. Contraceptive; ii. Amenorrhoea.

Mode of use and dose: i. Sun dried seeds and fruit cover is kept in water for one night. The mixer is then crushed with fresh bark of the plants to a paste, The paste is taken orally twice a day as contraceptive. ii. The seed are grounded with gur and taken orally to regularize mense. iii. Root of the plant and flowers of *Michelia champaca* L. are grounded into paste. One teaspoon of the paste is given orally in empty stomach to newly wedded women as a safe guard against miscarriage.

114. *Osbeckia nepalensis* Hook. (Melastomataceae); S.S.Dash 17269.

Local name: Not known.

Parts used: Flowers.

Therapeutic use(s): Astringent.

Mode of use and dose: Flower paste is taken orally and applied on wounds for rapid recovery.

115. *Oxalis corniculata* L. (Oxalidaceae); S.S.Dash 17042.

Local name: Amrul.

Parts used: Root + Leave.

Therapeutic use(s): Galactagogue.

Mode of use and dose: Equal amount of fresh root and leaves are grounded with 5-7 black pepper and make in a paste. One teaspoon of the paste is diluted in one glass of milk and given orally after delivery as a health tonic and for easy flow of milk.

116. *Panax pseudoginseng* Wall. (Araliaceae); S.S.Dash 14064.

Local name: Ginseng.

Parts used: Root.

Therapeutic use(s): Aphrodisiac.

Mode of use and dose: Root paste is diluted with milk and taken orally to increase sexually potency and vigor.

117. *Bistorta amplexicaulis* Green (Polygonaceae); S.S.Dash 28992, 24002.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Blood dysentery.

Mode of use and dose: Root paste is given orally to stop blood dysentery.

118. *Persicaria hydropiper* (L.) Spach. (Polygonaceae); S.S.Dash 22066.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Emmenagogue.

Mode of use and dose: Leaf paste taken orally to regularize menses.

119. *Phytolacca acinosa* Roxb. (Phytolaccaceae); P. Chakraborty 387.

Local name: Jaringo.

Parts used: i. Leaf juice; ii. Root.

Therapeutic use(s): i. Gastric ailments; ii. Rheumatism.

Mode of use and dose: i. Leaf juice is diluted with water and given orally to cure gastric ailments. ii. Root paste is applied externally to get relief from pain and swellings of bones due to rheumatism.

120. *Picrorhiza scrophulariiflora* Pennell (Scrophulariaceae); BSHC 15559.

Local name: Kutki.

Parts used: Root.

Therapeutic use(s): Blood dysentery.

Mode of use and dose: Root paste is diluted with water and given orally to cure blood dysentery and gastro-intestinal disorders.

121. Plumbago zeylanica L. (Plumbaginaceae); *S.S.Dash* 20790.

Local name: Chitapari.

Parts used: Root.

Therapeutic use(s): Contraceptive.

Mode of use and dose: Tender roots are grounded in to a paste and made in to small pills of 5 gm each. One pill daily taken orally in the evening as contraceptive.

122. Podophylum hexandrum Royle (Podophyllaceae); *S.S.Dash* 27029.

Local name: Papri.

Parts used: Root.

Therapeutic use(s): Laxative.

Mode of use and dose: About 5 gm root paste is given for one week to cure constipation.

123. Polygala arillata L. (Polygalaceae) *S.S.Dash* 20715.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Anti-dysentery vermifuge.

Mode of use and dose: i. Root paste is taken orally to cure chronic dysentery. ii. Root bark and stem bark paste in equal amount taken orally to expel intestinal worms.

124. Plantago erosa Wall. ex Roxb. (Plantaginaceae); *S.S.Dash* 22013.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Astringent.

Mode of use and dose: Leaf paste is applied around the external injuries to stop bleeding and also for rapid recovery.

125. Potentilla saundersiana (Rosaceae) *S.S.Dash* 22762.

Local name: Chiriya phal.

Parts used: Root.

Therapeutic use(s): Chest pain, cold, fever.

Mode of use and dose: Root decoction is used to make a sweet preparation with wheat flour and taken orally to cure cold and chest congestion.

126. Prunella vulgaris L. (Lamiaceae); *BSHC* 515.

Local name: Not known.

Parts used: i. Whole plants; ii. Flowers.

Therapeutic use(s): i. Headache, sore throats; ii. Febrifuge.

Mode of use and dose: i. Hot plant decoction is inhaled to cure headache due to nasal congestion. ii. Flowers paste is taken orally to cure fever.

127. Prunus cerasoides D.Don (Rosaceae); *S.S.Dash* 22096.

Local name: Paiyung.

Parts used: Bark.

Therapeutic use(s): Inflammation.

Mode of use and dose: Bark paste is applied externally with Ragi (*Elesine corocana* Gaertn.) flour locally known as *kodu* to cure inflammation due to external injury.

128. *Przewalskia tangutica* Maxim. (Solanaceae); S.K.Rai 1987.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Tympanitis.

Mode of use and dose: Root juice is diluted with water and taken orally to cure flatulent and distention of the belly.

129. *Ranunculus diffusus* DC. (Ranunculaceae) S.S.Dash 20796.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Antiseptic, Styptic.

Mode of use and dose: Plant paste is applied on and around the external injuries to stop bleeding and also as an antiseptic.

130. *Reinwardtia indica* Dum (Linaceae); BSHC 13728.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Antiseptic and Astringent.

Mode of use and dose: Leaf paste is applied externally to cure bleeding wound and also acts as an antiseptic.

131. *Rhaphidophora glauca* Schott. (Araceae); S.S.Dash 17241.

Local name: Kanshirna.

Parts used: Stem.

Therapeutic use(s): Body ache.

Mode of use and dose: About 100 ml of the stem decoction is taken orally daily for 15 days to cure general body-ache.

132. *Rheum acuminatum* Hook.f.& Thomson (Polygonaceae); S.S.Dash 18569.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): i. Rheumatism; ii. Febrifuge.

Mode of use and dose: i. Root decoction boiled with bark of *Cinnamomum tamala* T. Nees and Ebern. and taken orally to cure inflammation due to rheumatism. ii. Root paste is taken orally to cure fever.

133. *Rhododendron arboreum* Sm. (Ericaceae); S.S.Dash 15094.

Local name: Guras.

Parts used: Flower buds.

Therapeutic use(s): Dysentery.

Mode of use and dose: Paste of flower bud is taken orally to cure blood dysentery.

134. *Rhus semialata* Murray (Anacardiaceae); S.S.Dash 18872.

Local name: Bakhimlo.

Parts used: Fruits.

Therapeutic use(s): Blood dysentery.

Mode of use and dose: Ripen fruits are made in to paste. About 20 gm. of the paste is diluted with water and taken orally to cure blood dysentery.

135. *Rhus succedanea* L. (Anacardiaceae); S.S.Dash 17262.

Local name: Rani bhalaya.

Parts used: i. Leaf; ii. Leaf + Bark; iii. Branch gall.

Therapeutic use(s): i. Viral infection and cough; ii. Dysentery; iii. Expectorants.

Mode of use and dose: i. The paste of leaf and branch galls mixed in equal proportion and made into small tablets of 5mg each. Two tablets taken orally trice a day to cure cough. ii. Equal amount of leaf and bark is made into paste and tablets of 10 gm each are made. Two tablets twice a day taken orally to cure blood dysentery. iii. About 25 gm of the paste of branch gall is mixed with a local prepared beer *Chang* and taken orally to expel cough and clear chest congestion.

136. *Ribes acuminatum* G. Don (Grossulariaceae); S.S.Dash 22796, 22799.

Local name: Chamze.

Parts used: i. Leaves; ii. Fruits.

Therapeutic use(s): i. Astringent, Antiseptic; ii. Constipation.

Mode of use and dose: i. Leaf paste is applied externally on cuts and wound for rapid recovery and as an antiseptic. ii. Fruit paste is taken orally to cure chronic constipation.

137. *Rubia manjiith* Roxb. ex Flem. (Rubiaceae); S.S.Dash 22021.

Local name: Majito.

Parts used: Root.

Therapeutic use(s): Leucorrhoea.

Mode of use and dose: About 100 gm of roots are crushed and boiled in water to prepare a strong decoction. The decoction is then mixed with *Curcuma longa* L. paste. Two teaspoon of the preparation is taken orally twice a day to reduce excess white discharge.

138. *Rubus ellipticus* Sm. (Rosaceae); S.S.Dash 22094.

Local name: Aiselu.

Parts used: i. Bark; ii. Root

Therapeutic use(s): i. Dysentery; ii. Jaundice.

Mode of use and dose: i. Equal amount of the bark and tender leaves of the *Psidium guajava* L. is mixed and pounded to a paste. One tea spoon of the paste is taken orally to cure dysentery. ii. Root paste given orally to cure jaundice and liver ailments.

139. *Rumex dentatus* L. (Polygonaceae); S.S.Dash 22985.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Skin blisters.

Mode of use and dose: Root decoction is used to wash and applied externally on affected areas to cure painful skin blisters.

140. *Rumex nepalensis* Spreng. (Polygonaceae); S.S.Dash 22080, 27268.

Local name: Holhaley.

Parts used: i. Leaves; ii. Root decoction.

Therapeutic use(s): i. Antacids; ii. Food poison.

Mode of use and dose: i. About 10 ml of the leaf decoction is taken orally as antacid. Leaf paste given orally to cure stomach upset. ii. Root decoction is taken orally to cure food poison particularly due to indigestion.

141. *Sanicula elata* Buch.-Ham. ex D.Don (Apiaceae); S.S.Dash 20722.

Local name: Not known.

Parts used: i. Whole plant; ii. Flowers.

Therapeutic use(s): i. Blood dysentery; ii. Antiseptic, Styptic.

Mode of use and dose: i. About 5 gm of plant paste is taken orally to cure blood dysentery. ii. Flower paste is applied on and around external injuries to stop bleeding and as an antiseptic.

142. *Schima wallichii* (DC.) Korth (Theaceae); S.S.Dash 17243.

Local name: Chilaune.

Parts used: Root.

Therapeutic use(s): Febrifuge.

Mode of use and dose: A small piece of the root is chewed to reduce body temperature during fever.

143. *Scurrula parasitica* L. (Loranthaceae); BSHC 23513.

Local name: Ajiru.

Parts used: Root.

Therapeutic use(s): Contraceptive.

Mode of use and dose: The root is crushed in to paste with ginger. One teaspoon of the paste is taken orally daily as contraceptive. Concentrated paste of root is taken orally for seven days in empty stomach within 3 weeks of sexual intercourse to prevent pregnancy.

144. *Solanum torvum* Sw. (Solanaceae); BSHC 11356.

Local name: Barabihi.

Parts used: Leaves.

Therapeutic use(s): Stomachache, carminative.

Mode of use and dose: The leaf and fruits of the plant is boiled and paste is made out of that. One teaspoon of the paste is taken orally to cure stomachache due to indigestion. This dose is also cure flatulent and acts as an appetizer.

145. *Solanum viarum* Dun (Solanaceae); BSHC 22362.

Local name: Sanabihi.

Parts used: Fruits with bark.

Therapeutic use(s): i. Cough and cold; ii. Nasal congestion.

Mode of use and dose: i. Equal amount fruit and bark is mixed and crushed into a paste. One teaspoon of the paste is taken orally twice daily to cure viral fever and cold. ii. The paste is also inhaled to clear nasal congestion.

146. *Stellaria patens* D.Don (Caryophyllaceae); S.S.Dash 22034.

Local name: Not known.

Parts used: Whole plant.

Therapeutic use(s): Piles, hemorrhoids.

Mode of use and dose: Plant paste is applied around the anus to get relief from pain in piles and to cure anal fissure.

147. *Swetia chirayita* (Roxb. ex Flem.) Korst (Gentianaceae); *S.S.Dash* 24047.

Local name: Chirowta.

Parts used: i. Leaves; ii. Root.

Therapeutic use(s): i. Febrifuge; ii. Purgative.

Mode of use and dose: i. Leaf decoction is taken orally to cure fever. ii. Root paste is applied around boils and carbuncles to easy burst and to speed recovery.

148. *Symplocus glomerata* King (Symplocaceae); *S.S.Dash* 13776.

Local name: Kharaney.

Parts used: Fruit.

Therapeutic use(s): Dysentery.

Mode of use and dose: Tablets of about 5 gm of fruit paste are made. Two tablets in each 4 hours taken to cure dysentery.

149. *Taxus baccata* subsp. *wallichiana* (Zucc.) Pilger. (Taxaceae); *BSHC* 22362.

Local name: Dhengre salla.

Parts used: Bark.

Therapeutic use(s): Health tonic.

Mode of use and dose: About 30 ml of the bark decoction is mixed with water and is taken orally as general health tonic.

150. *Tetradium fraxinifolium* Wall. ex Royel (Rutaceae) *S.S.Dash* 17273.

Local name: Not known.

Parts used: Fruits + Bark.

Therapeutic use(s): Dysentery.

Mode of use and dose: Equal amount of the fruit and bark is mixed and grounded to a paste. About 10 gm of the paste are taken orally to cure dysentery.

151. *Terminalia myriocarpa* Heurck & Muell.- Arg. (Combretaceae); *S.K.Rai* 18873.

Local name: Panisaj.

Parts used: Bark.

Therapeutic use(s): Strangury.

Mode of use and dose: Bark of tree, along with bark of *Sygygium cumini* (L.) Skeels (Nep. Jumun) are crushed into paste. Two teaspoon of the paste of diluted with sugarcane juice and taken twice or thrice a day for five days to cure painful urination process. This dose is also prescribed to reduce bad odors in urine.

152. *Thalictrum foliolosum* DC. (Ranunculaceae); *S.S.Dash* 24197.

Local name: Not known.

Parts used: Root.

Therapeutic use(s): Conjunctivitis.

Mode of use and dose: Roots of one or two plants are boiled to prepare a decoction. Eyes are washed with this decoction twice a day to cure conjunctivitis.

153. *Thunbergia grandiflora* Roxb. (Thunbergiaceae); S.S.Dash 14399.

Local name: Not known.

Parts used: Leaves.

Therapeutic use(s): Carminative.

Mode of use and dose: Leaf decoction is taken orally to cure indigestion.

154. *Thunbergia lutea* (Roxb.) Kuntze (Thunbergiaceae); S.S.Dash 22063, 22041.

Local name: Not known.

Parts used: Seeds.

Therapeutic use(s): Abortifacient.

Mode of use and dose: Seed paste is taken orally within one week of the sexual intercourse for abortion.

155. *Thysanolaena maxima* (L.) Lam. (Poaceae); S.S.Dash 22066.

Local name: Amlisho.

Parts used: Root.

Therapeutic use(s): Purgative.

Mode of use and dose: Root paste is applied around boil and carbuncles for easy burst and recovery.

156. *Toddalia asiatica* (L.) Lam. (Rutaceae); BSHC 22569.

Local name: Singanem, Mein Khanra.

Parts used: Root.

Therapeutic use(s): Diarrhoea.

Mode of use and dose: Small pills of 5gm. is made out of the root paste of the plant and taken orally to cure dysentery.

157. *Trichosanthes lapiniana* Cogn. (Cucurbitaceae); S.S.Dash 22823.

Local name: Indreni.

Parts used: i. Seed; ii. Root.

Therapeutic use(s): i. Contraceptive; ii. Food poison.

Mode of use and dose: i. Seeds are sun dried and powdered. The powder is mixed thoroughly with equal amount of powder of sun dried peeled tubers of *Dioscoria bulbifera* L. About one or two teaspoons of the mixture is taken orally for 7 days after menstruation to prevent pregnancy. ii. The root paste or root decoction of the plant is taken orally to wash the stomach in case of food poison.

158. *Trichosanthes tricuspidata* Lour. (Cucurbitaceae); S.S.Dash 22823(A).

Local name: Indreni.

Parts used: Fruit.

Therapeutic use(s): Asthma, bronchitis.

Mode of use and dose: Dried fruit powder smoked to cure bronchitis.

159. *Urtica dioica* L. (Urticaceae); S.S.Dash 22064.

Local name: Sishnu.

Parts used: Root.

Therapeutic use(s): Purgative.

Mode of use and dose: Root paste is applied around boil and carbuncles for easy burst and recovery.

160. *Urtica parviflora* Roxb. (Urticaceae); S.S.Dash 22064.

Local name: Gharia sishnu.

Parts used: Root.

Therapeutic use(s): Inflammation.

Mode of use and dose: Root paste applied externally to cure inflammation.

161. *Valeriana hardwickii* Wall. (Valerianaceae). BSHC 17303.

Local name: Chammaha.

Parts used: Root.

Therapeutic use(s): Antiseptic.

Mode of use and dose: The roots are crushed in to a paste and applied externally as antiseptic.

162. *Viola thomsonii* Oudem. (Violaceae); S.S.Dash 17256.

Local name: Heele.

Parts used: Leaf.

Therapeutic use(s): Eczema, fungal infection and other skin diseases.

Mode of use and dose: Leaf juice is applied around the affected area to cure skin blisters and ailments due to fungal infection.

163. *Viscum articulatum* Burm.f. (Loranthaceae); S.S.Dash 12730.

Local name: Harchur.

Parts used: i. Root; ii. Leaves.

Therapeutic use(s): i. Aphrodisiac; ii. Minor bone fracture.

Mode of use and dose: i. Roots of the plant along with fruits of *Piper peepuloides* Roxb. (Nep. Rukh peeple) are grounded to a paste. Small pills of 5 gm each are made out of the paste and taken orally within 3 weeks of sexual intercourse to prevent pregnancy. ii. Leaves are crushed with bark of *Mucuna pruriens* (L.) DC. and when taken orally believed to be aphrodisiac. ii. Leaf paste is used to make plaster around the affected area with the help of bamboos and wet cloth. Then the plaster is left for 15 days to cure minor bone fractures.

164. *Vitex negundo* L. (Verbenaceae). S.S.Dash 20345.

Local name: Siwali.

Parts used: Leaf.

Therapeutic use(s): Earache.

Mode of use and dose: Two drops of leaf juice is poured in the ears to cure earache.

165. *Wrightia arborea* (Dennst.) D.J. Mabberley (Apocynaceae).

Local name: Karingi, Khira.

Parts used: i. Root; ii. Bark.

Therapeutic use(s): Abdominal pain during menses, ii. Emmenagogue.

Mode of use and dose: i. Root bark is grounded with 5-8 seeds of *Piper nigrum* L. and taken orally twice daily for relieve of abdominal pain. ii. Bark of the plant is grounded to a fine paste, one teaspoon of the paste is taken orally daily twice for 7 days to regularize menses.

166. *Zanthoxylum armatum* DC. (Rutaceae); BSHC 3456.

Local name: Bale timur.

Parts used: i. Leaves; ii. Seeds

Therapeutic use(s): i. Indigestion; ii. Anthelmintic.

Mode of use and dose: i. About 10 ml of the leaf decoction is taken orally twice a day to cure indigestion and acidity. ii. Seed paste is given orally to infants to expel intestinal worms.

167. *Zanthoxylum acanthopodium* DC. (Rutaceae); S.S.Dash 13777.

Local name: Bokey timbur.

Parts used: Fruit.

Therapeutic use(s): Toothache.

Mode of use and dose: Fruit powder is used for brushing teeth to reduce toothache.

RESULTS

The ethnobotanical information gathered reveals 225 different uses of 167 plant species belonging to 84 families for the treatment of 27 major ailments. The plants species are presented in alphabetical order followed by the family name, collection number, vernacular name (mostly in Nepali), the parts used, the therapeutic symptoms for which the plants were used and the methods of preparation of doses. Herbs are represented by approximately 50% of the total species, followed by trees (25.7%) and shrubs (16.7%); while climbers constitute the lowest habitat category (8.38%). Out of the total species, 106 species show their range of distribution in tropical and sub-tropical region, 26 species found in temperate region, 16 species found in alpine region while 19 species found in transitional belts.

Table - I : Medicinal plants arranged by habitats

Habitat	Total species	Percentage
Herbs	82	49.1
Shrubs	28	16.76
Trees	43	25.75
Climber	14	8.39
Total	167	100

Plant parts used :

The plant parts used for different ailments bark, flowers, fruits, leaves, rhizomes, seed, stems and young shoots. Herbs were mostly used as whole, while in case of trees, the parts were used differently. (**Fig. -1**). It is interesting to note that there were 17 types of medicines which were used in combinations of different parts.

Roots are used most frequently, may be due to their high concentration of bioactive compounds (Anonymous 1966, Bauvaldo & al., 1995; Robinson, 1974). It is significant to note that uprooting of plants or removal of roots is the main cause of loss of a particular species.

Ailments treated :

All total 28 ailments were treated. Instances are there that single plant is used for different ailments in different combination and different doses. *The table-II* show the different ailments and the plants or plant parts used for treatment.

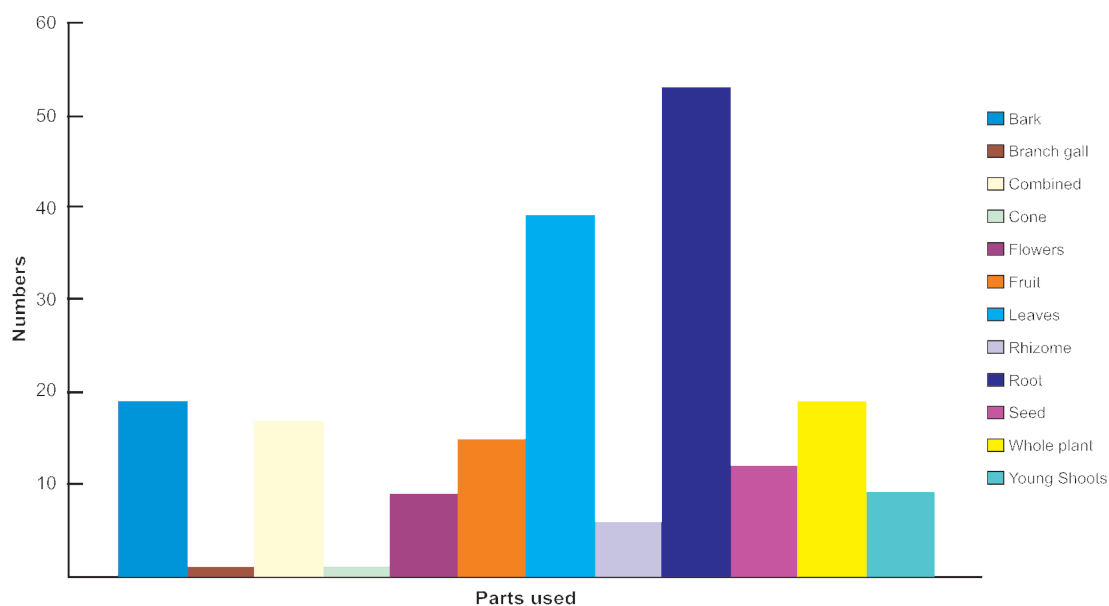


Fig.- 1: Plant parts used in preparation of different medicines and doses.

Table- II: Medicinal Plants used various ailments

Sl. No.	Therapeutic use(s)/ Diseases symptoms	Plants used
1.	Anthelmintic	<i>Aconitum heterophyllum</i> , <i>Aphanamixis polystachya</i> , <i>Hedera nepalensis</i> , <i>Zanthoxylum armatum</i> ,
2.	Antidotes	<i>Berberis wallichii</i> , <i>Datura metel</i> , <i>Eurya acuminata</i> , <i>Galinsoga parviflora</i>
3.	Antiseptic, Cut & Wounds/Styptic	<i>Achyranthes bidentata</i> , <i>Ageratum conyzoides</i> , <i>Anaphalis contorta</i> , <i>Artemisia nilagirica</i> , <i>Centella asiatica</i> , <i>Circaea alpina</i> , <i>Clinopodium umbrosum</i> , <i>Colebrookea oppositifolia</i> , <i>Didymocarpus pedicellata</i> , <i>Eupatorium adenophorum</i> , <i>Eupatorium cannabinum</i> , <i>Ranunculus diffusus</i> , <i>Reinwordtia indica</i> , <i>Sanicula elata</i> , <i>Terminalia myriocarpa</i> , <i>Stellaria patens</i> , <i>Valeriana hardwickii</i>
4.	Aphrodisiac/ Libido	<i>Dalbergia latifolia</i> , <i>Hedera nepalensis</i> , <i>Panax pseudoginseng</i> , <i>Viscum articulatum</i>
5.	Arbortifacient	<i>Abrus precatorius</i> , <i>Thunbergia lutea</i>
6.	Asthma/Bronchitis and Respiratory problems	<i>Betula utilis</i> , <i>Clematis wightiana</i> , <i>Clematis buchananiana</i> , <i>Desmodium elegans</i> , <i>Ephedra gerardiniana</i> , <i>Girardinia diversifolia</i> , <i>Rhus semialata</i> , <i>Solanum viarum</i> , <i>Trichosanthes tricuspidata</i>
7.	Astringent	<i>Bistorta affinis</i> , <i>Bistorta vivipara</i> , <i>Dichrocephala integrifolia</i> , <i>Osbeckia nepalensis</i> , <i>Plantago erosa</i> , <i>Ribes acuminatum</i>
8.	Carminative	<i>Clematis wightiana</i> , <i>Solanum torvum</i> , <i>Thunbergia grandiflora</i> , <i>Zanthooxylum armatum</i>
9.	Conjunctivitis	<i>Berberis aristata</i> , <i>Thalictrum foliosum</i>
10.	Contraceptives	<i>Butea monosperma</i> , <i>Croton caudatus</i> , <i>Michelia doltsopa</i> , <i>Oroxylum indicum</i> , <i>Plumbago zeylanica</i> , <i>Scurrula parasitica</i> , <i>Trichosanthes lapiniana</i>
11.	Dental care	<i>Abies densa</i> , <i>Zanthoxylum acanthopodium</i>
12.	Dermatological use/ Skin disorders	<i>Clematis buchananiana</i> , <i>Equisetum diffusum</i> , <i>Gmelina arborea</i> , <i>Juniperus recurva</i> , <i>Lyonia ovalifolia</i> , <i>Rumex dentatus</i> , <i>Viola thomsoni</i>
13.	Diarrhoea & Dysentery	<i>Agrimonia pilosa</i> , <i>Berginia ciliata</i> , <i>Bistorta amplexicaule</i> , <i>Cinnamomum tamala</i> , <i>Picrorhiza scrophulariiflora</i> , <i>Polygala arillata</i> , <i>Rhododendron arboreum</i> , <i>Rhus semialata</i> , <i>Rubus ellipticus</i> , <i>Sanicula elata</i> , <i>Symplocus glomerata</i> , <i>Tetradium fraxinifolium</i> , <i>Toddalia asiatica</i> ,

Sl. No.	Therapeutic use(s)/ Diseases symptoms	Plants used
14.	Diuretic	<i>Ajuga bracteosa</i> , <i>Bombax ceiba</i> , <i>Coix lachryma-jobi</i> , <i>Daphne bholua</i> , <i>Desmodium elegans</i> , <i>Ilex dipyrena</i> , <i>Laportea terminalis</i> , <i>Mahonia nepalensis</i> , <i>Ophiorrhiza treutleri</i> .
15.	ENT problems	<i>Bergenia purpurascens</i> , <i>Bidens pilosa</i> , <i>Bistorta vivipara</i> , <i>Flascopea scandens</i> , <i>Hemiphragma heterophyllum</i> , <i>Hippophae salicifolia</i> , <i>Juglans regia</i> , <i>Vitex negundo</i>
16.	Febrifuge, Cold and cough	<i>Abelmoschus manihot</i> , <i>Abrus precatorius</i> , <i>Acoros calamus</i> , <i>Artemisia nilagirica</i> , <i>Ammomum subulatum</i> , <i>Begonia cathcartii</i> , <i>Brugmansia suaveolens</i> , <i>Dichroa febrifuga</i> , <i>Drymaria cordata</i> , <i>Gmelina arborea</i> , <i>Heracleum wallichii</i> , <i>Nasturtium officinale</i> , <i>Potentilla saundersiana</i> , <i>Prunella vulgaris</i> , <i>Rheum acuminatum</i> , <i>Schima wallichii</i> , <i>Swertia chirayita</i> , <i>Solanum viarum</i>
17.	Galactagogue	<i>Alstonia scholaris</i> , <i>Cleome viscosa</i> , <i>Costus speciosus</i> , <i>Oxalis corniculata</i>
18.	Gastro-intestinal ailments	<i>Agrimonia pilosa</i> , <i>Ainsliaea latifolia</i> , <i>Bidens pilosa</i> , <i>Bergenia purpurascens</i> , <i>Callicarpa arborea</i> , <i>Cannabis sativa</i> , <i>Cissampelos pareira</i> , <i>Coelogyne fuscescens</i> , <i>Hedychium spicatum</i> , <i>Houttuynia cordata</i> , <i>Juniperus recurva</i> , <i>Litsea cubela</i> , <i>Nardostachys grandiflora</i> , <i>Phytolacca acinosa</i> , <i>Przewalskia tangutica</i> , <i>Solanum torvum</i>
19.	Gynecological disorders	<i>Abies densa</i> , <i>Abroma augusta</i> , <i>Abrus precatorius</i> , <i>Alangium chinense</i> , <i>Amaranthus spinosus</i> , <i>Astilbe rivularis</i> , <i>Berginia ciliata</i> , <i>Bombax ceiba</i> , <i>Butea monosperma</i> , <i>Caesalpinia bonduc</i> , <i>Clerodendrum infortunatum</i> , <i>Dendrocalamus hamiltonii</i> , <i>Gloriosa superba</i> , <i>Oroxylum indicum</i> , <i>Persicaria hydropiper</i> , <i>Rubia manjiith</i> , <i>Wrightia arborea</i>
20.	Jaundice and Liver disorders	<i>Betula alnoides</i> , <i>Cissampelos pareira</i> , <i>Rubus ellipticus</i>
21.	Laxatives	<i>Belamcanda chinensis</i> , <i>Fraxinus floribunda</i> , <i>Gaultheria nummularioides</i> , <i>Houttuynia cordata</i> , <i>Podophyllum hexandrum</i> , <i>Ribes acuminatum</i>
22.	Muscular pain/ Anti- inflammation	<i>Astilbe rivularis</i> , <i>Betula alnoides</i> , <i>Bidens pilosa</i> , <i>Bischofia javanica</i> , <i>Bistorta affinis</i> , <i>Boenninghausenia albiflora</i> , <i>Buddleja asiatica</i> , <i>Cuscuta reflexa</i> , <i>Cyathea spinulosa</i> , <i>Dichroa febrifuga</i> , <i>Dioscorea belophylla</i> , <i>Eupatorium adenophorum</i> , <i>Heracleum wallichii</i> , <i>Prunus cerasoides</i> , <i>Rhaphidophora glauca</i> , <i>Urtica parviflora</i> ,
23.	Pre & post natal care	<i>Aphanamixis polystachya</i> , <i>Campylandra aurantiaca</i> , <i>Costus speciosus</i> , <i>Elephantopus scaber</i> , <i>Gloriosa superb</i> , <i>Michelia champak</i> , <i>Taxus baccata</i> var <i>wallichiana</i>
24.	Purgative	<i>Ajuga bracteosa</i> , <i>Girardinia diversiflora</i> , <i>Ficus semicordata</i> , <i>Iris clarki</i> , <i>Swertia chirayita</i> , <i>Thysanolaena maxima</i> , <i>Urtica dioica</i>
25.	Rheumatism	<i>Aconitum ferox</i> , <i>Caltha palustris</i> , <i>Cassia fistula</i> , <i>Erythrina arborescens</i> , <i>Eurya acuminata</i> , <i>Murraya koenigii</i> , <i>Phytolacca acinosa</i> , <i>Rheum acuminatum</i>
26.	Veterinary use	<i>Anemone rivularis</i> , <i>Capsella bursa-pastoris</i> , <i>Maesa chisia</i> ,
27.	Others	<i>Berginia ciliata</i> , <i>Centella asiatica</i> , <i>Rumex dentatus</i> , <i>Trichosanthes lapiniana</i> , <i>Viscum articulatum</i>

DISCUSSION

During the open ended interviews it was revealed that the use of plants for common ailments viz. cough & cold, nasal congestion, fever, pain reliever were quite familiar to most of the inhabitants. However, knowledge regarding complicated ailments like gynecological problems, ailments dealing with infants, pregnancy, pre & post natal treatment were known to a particular section of the people; some of which serve as local herbal healer. This kind of traditional curative knowledge was usually inherited in a family which kept the information

for secret for generation to generation in a belief that the remedial effect of the medicines would loose its potency if disclosed to other people (Dash, 1994). Similar observations were also made by others in Himalayan region (Shrestha & Dhillion, 2003; Bhat & al., 1990; Jain & Salkani, 1991).

All the treatments were based on the medicines prepared from single plant. However 16 medicinal remedies were based on the mixture of two or three plants. The preparation of doses included powder, decoction, paste, raw plant material (unprocessed), smoke and juice. About 62% of remedies were cured by paste, 17% were cured by decoctions while 19% of remedies were cured by other applications. Like wise the decoction was made by boiling of the parts of whole plant to a thick solution.

Use of the drug includes oral administration, inhalation, poultice, external application and massage. Most of the medicines are administrated orally, while poultice of the 21% of the plants are applied externally. Internal uses of medicines were maximum in the gastro-intestinal ailments while external application was maximum in skeleto-muscular and dermatological ailments. Similar findings were also reported from other parts of the world (Bonet & al., 1992; Raja & al., 1997).

Some of the interesting remedies were *Centella asiatica* L. used for controlling blood pressure, *Costus speciosus* used for reducing breast swelling, *Rubus ellipticus* used for jaundice, *Gynocardia odorata* used for epilepsy and *Berberis wallichii* used for mad dog bite. The high use of plants for gynecological disorders reflects the socio-economic condition of the people inhabited in this region.

It is very difficult to assess the effectiveness of the herbal medicines. Literature survey revealed that some of the plants practiced by the people are likely to be effective; for example seeds of *Abrus precatorius* contain alkaloid abrine, which is mild poison, the dose used for abortion. The use of *Aconitum ferox* against epilepsy is supported by the presece of a toxic alkaloid pseudo-aconitine which has an antidepressant effect on central nervous system. (Anonymous 1956). Use of *Dichroa febrifuga* as antipyretic supported the presence of a bitter substance and possess anti malarial activity. Similarly the use of *Swertia chirayita* for fever is substantiated by presence of a bitter substance *Chiratin* (Anonymous 1956). The application of leaf juice of *Eupatorium adenophorum* externally to stop bleeding is supported by presence of a haemostatic substance ayapanin (Bose & Roy, 1936). However, the purpose of this paper is not to prescribe any remedy against any diseases but to report the traditional uses of the plants; which would be screened and tested by the pharmacogist before used as medicines.

CONCLUSION

Sikkim is one of the smallest States of India not fully explored ethnobotanically. Many parts of the State are inaccessible and modern health care is not easily available. The recorded information was gathered mainly from the rural sectors of the state and not reported from the earlier published data. The local names of the plants are different from place to place but the uses are same.

In recent years the rural folk have started discarding their traditions including the herbal remedies. The use of the plants has also declined due to scarcity of medicinal plants in the region. Over exploitation of the plants for domestic as well as commercial uses is also a great threat. The opening up of several high altitude areas like Nathula, Gurudangmar lake, Chola mau lake, Dzongri ect. to tourists in Sikkim has also affected the microclimatic conditions of these fragile ecosystems. Overgrazing and large scale timber extractions are also major threats to the existing biodiversity. Legal as well as illegal trade of some important medicinal plants viz. *Picrorhiza scrophulariiflora*, *Nardostachys grandiflora*, *Aconitum spp*, *Swertia chirayita*, *Podophyllum hexandrum* and *Taxus wallichiana* have already endangered many unique populations of these species in the region.

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सिक्किम, भारत में पारम्परिक शाकीय उपचार

एस.एस. दाश

सार संक्षेप

शोधपत्र में सिक्किम के दस ग्रामीण समुदायों द्वारा 27 प्रमुख रोगों के उपचार के लिए 84 कुलों की 167 पादप जातियों के विभिन्न 225 उपयोग दिए गए हैं। संग्रह की गई सारी सूचना सिक्किम के चुने हुए प्रतिनिधि गाँवों के शाकीय उपयोग पर आधारित थी। संग्रह के सिलसिले में पारम्परिक उपयोग प्रणाली, उपयोग में आनेवाले भाग, तैयार करने की पद्धति और खुराक पर भी चर्चा हुई। उपयोग में आने वाले कुल पौधों में 50% शाक, 25% वृक्ष, 17% क्षुप तथा 8% लताएँ हैं। अधिकांश शाकीय औषधि में एक पौधा या उसके विशेष भाग का लेप बनाकर उपयोग किया जाता है। काढ़ा, चूर्ण या साँस से ग्रहण कुछ अन्य प्रणाली हैं। सामान्य रोगों के उपचार हर घर के लोग जानते थे। कठिन रोगों की औषधि या खुराक शाकीय चिकित्सक या 'जकरी' की सलाह से लिये जाते थे। वर्तमान अध्ययन से संकेत मिला है कि इस अंचल में औषधीय पौधों की प्रचुर विविधता है। स्थानीय नाम, स्वभाव (हेबीट), फूल एवं फल लगने की अवधि, पौधे की उपयोगी भाग, औषधिय गुण, उपयोग प्रणाली के साथ 167 पादप जातियों की सूची भी दी गई है।