Chapter V

ETHNOPHARMACOLOGY OF THE KARLRAYANS
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5.1 Introduction

This chapter aims at presenting a cogent account of local practices shared by medicine men and women. Wherever data were divulged on preparations, they were carefully recorded and are here presented. Gender based participatory discussion in small homogenous groups separately with males and females encouraged them to participate and discuss freely. A concerted effort to gather information from tribal women especially the elderly was significantly rewarding.

5.2 Pharmacology of Ethno species

Abrus precatorius L. ssp. precatorius (Fabaceae)

For voice clearance, 4-5 leaves are chewed. Root decoction is taken internally as a remedy for swelling of legs and hands.

As the seeds are poisonous, a very small quantity of seed powder is given orally to women for abortion. It acts as an abortifacient. During ethnobotanical survey, the tribals informed that seeds of this plant are used as an antifertility drug both in male as well as female. The seed powder is taken orally either along or with the seed extract/powder of Indigofera cordifolia or stem powder of Tinospora cordifolia, twice a week.

Abutilon indicum (L.) Sweet ssp. indicum (Malvaceae)

The leaves and seeds are crushed with water to form a paste which is applied to penis to cure syphilis.

Acacia catechu (L.f.) Willd. (Mimosaceae)

Extracts of bark act as abortifacient while the latex is mixed with water or milk and given orally to the pregnant ladies at the time of childbirth for easy delivery.
**Acacia nilotica (L.) Willd. ex Del. ssp. indica (Benth.) Brenan (Mimosaceae)**

Half tea spoon of powdered inner bark of tree is kept in the mouth for half an hour for relief from tooth ache. Decoction prepared from outer bark is used as gargle to stop bleeding gums.

**Acalypha indica L. (Euphorbiaceae)**

Extract of leaves (one cup) is taken once in a day for two days to cure stomach pain and cough.

**Achyranthes aspera L. (Amaranthaceae)**

About 10 gm leaf with 7 black pepper seeds is ground, small tablets of about 2 gm are made and is taken for 7 days to cure bilious fever and typhoid. In rheumatic fever, paste of leaves and roots is fried in castor oil and tied on the cuts and wounds with the help of a cloth for healing. Root paste with sugar candy powder is prescribed for 21 days in empty stomach against dog and jackal bite. Leaf juice with salt is applied on ringworms. Root-paste and black pepper is administered during cholera, indigestion and diarrhoea. In the decoction made from 50 gm seed of the plant with 10 gm fresh *Eclipta prostrata* leaves in 1 litre and reduced to 250 ml, which is applied to stop alopecia (hair fall), lies and dandruff. This oil also cures headache, migraine, scabies, itches, eczema and different types of skin diseases. Paste of roots of *Achyranthes aspera* and *Cassia sophera* is applied externally on scabies to get relief. This paste with cow urine is applied on leprosy wound daily 2-3 times for one month for cure. One cup leaf extract mixed with 10 gm of refined camphoris is applied on face daily twice to clear acne, black spots and leucoderma.

A handful of fresh leaves are made into paste with small quantity of water. This paste is mixed with a pinch of lime and is applied externally on the spot once a day for three or four days for dog bite.

About 2-3 fully-grown plants boiled in 2 litres of water are reduced to 200 ml. The filtered extract is orally administered in empty stomach in the early hours for one time only to relieve joint pains.
Dried plants are burnt and made into ash, which is mixed with common salt and used to massage the gum and tooth area for relief from tooth ache. Stem also is used as tooth brush.

**Acorus calamus L. (Araceae)**
Rhizome is made into paste and applied to painful teeth and gums.

**Actiniopteris radiata (Sw.) Link (Pteridophyte)**
The paste of about twenty grams of fresh green fronds is applied externally on the stomach especially around the navel area for three days once or twice to reduce colic pain even among adults.

**Adhatoda zeylanica Medik. (Acanthaceae)**
Plant decoction with honey is prescribed in empty stomach twice daily for 7 days to cure jaundice. Leaf juice, long pepper powder and 2 teaspoon honey is taken in empty stomach for 2-3 days to cure cough, cold and catarrh. Root bark decoction with honey is taken orally in empty stomach to cure asthma. For chronic patients, medicine is prescribed twice daily for one month. It also cures tuberculosis, chest pain and respiratory diseases. Plant decoction with honey is taken twice daily in empty stomach to cure cold, fever and rheumatic fever. Flowers fried in cow ghee, along with one-teaspoon long pepper powder or 2-teaspoon ginger juice is taken twice daily, in empty stomach, for 7 days to cure phlegm. A cloth dipped in warm leaf juice is tied on body to get relief from body ache. Decoction of roots of the plant, *Stephania japonica* root and fruits of *Terminalia chebula, Terminalia bellirica* and *Emblica officinalis* with one drop of cow ghee is taken orally thrice a day for one moth in empty stomach to cure diabetes.

**Aegle marmelos (L.) corr. (Rutaceae)**
Decoction of apical bud made with jaggery is taken in sexual debility both by men and women for 7 days.

**Ageratum conyzoides L. (Asteraceae)**
Leaf juice is applied to cure abscess, boils, itches, cuts and wounds for checking bleeding and for healing. Paste of leaf mixed with turmeric is given to
children to cure fever and all types of skin diseases. Leaf and black pepper paste is prescribed to stop dysentery. Leaf juice and fresh leaf juice of *Cyperus rotundus* mixed with small amount of sugar candy is taken in case of vomiting and diarrhoea.

**Albizia amara (Roxb.) Boiv. (Mimosaceae)**

Ten grams of fresh bark of the stem is made into paste with salt and taken orally with water two times a day for a span of three days to get relief from stomach-ache.

**Alangium salviifolium (L.f.) Wangerin ssp. salviifolium (Alangiaceae)**

One teaspoon of root extract is given to women for two days early in the morning to abort foetus of up to 5 months pregnancy, but an excess amount is poisonous to women.

**Aloe vera (L.) N. Burm. (Liliaceae)**

Fresh leaves paste with crushed turmeric is taken internally once in a day for three days to cure chest pain. Fresh leaves paste with sugar is taken internally thrice a day to reduce body heat.

**Andrographis paniculata Nees (Acanthaceae)**

Leaf extract is taken orally for 7 days to cure skin diseases and intestinal worms. Leaf paste is prescribed in empty stomach for blood purification. Dry leaf powder is used as insecticide. Leaf paste and turmeric is applied on itches. *Andrographis paniculata, Melia azedarach* and *Azadirachta indica* are together boiled in water to get 200 ml decoction. One teaspoon of this decoction with one teaspoon of honey is taken twice a day in empty stomach for 15 days to cure rheumatic fever and cholangitis.

For stomach pain, two pills made from a handful of leaves crushed with sugar, are taken internally every day for two days. Fresh leaves paste with table salt is taken internally as laxative.

One teaspoon of fresh plant juice or 1-2 g of shade dried plant powder is consumed twice a day for seven days for snake bite and scorpion sting.
Anogeissus latifolia (DC.) Wall. ex Guill. & Perr. (Combretaceae)
Sweet locally known as “Ladoos” is prepared from the gum and given to women after delivery to get rid of back pain and to cure the damaged tissue.

Argyreia speciosa Sw. (Convolvulaceae)
Fifty grams of peeled tubers are roasted or boiled and taken orally two times in a day for two days to treat gastric disorders.

Aristolochia indica L. (Aristolochiaceae)
Fresh or shade dried leaves are crushed with *Piper nigrum* and made into pills. Two pills taken internally twice a day as remedy for snake bite and scorpion bite.

About 5 gm of the fresh roots are made into paste with a few drops of water and the paste is applied externally on the spot or 2-3 gm of shade dried root powder is taken orally with 100 ml of cold water two times a day for five to seven days for snake bite and scorpion sting.

Juice is prepared from ten to fifteen grams of fresh root with hot water and taken orally in empty stomach for three days in a single dose to get relief from stomach-ache.

Aristolochia tagala Cham. (Aristolochiaceae)
About 1-2 gm of shade dried root powder is taken orally along with 100 ml of urine of a child of opposite sex twice a day for five to seven days for snake bite.

Asparagus racemosus Willd. (Liliaceae)
For Galactagogue and seminal weakness, two teaspoonful of root crushed with sugar is taken once a day for 15 days.

Fresh tubers are pounded with buttermilk. The filtered juice made to 50 ml by adding extra buttermilk and given to women at bed time after the monthly menstrual cycle for 5 days for sterility.
Root powder is taken orally by the tribal ladies to cure body ache and leucorrhoea. Half cup root extract is given to women early in the morning for seven days to increase fertility and conceive.

**Atalantia racemosa Wight & Arn. (Rutaceae)**

About 2 gm of fresh leaves and 2gm of fresh turmeric are made into paste is applied on the spot two or three times a day for two to three days for honey bee sting.

**Azadirachta indica A. Juss. (Meliaceae)**

Leaf extract is given to women to stop excessive bleeding during menstrual period, while seed oil is used as contraceptive by the tribal ladies.

**Azima tetracantha Lam. (Salvadoraceae)**

Leaves are ground to get juice and the same is dropped into the ear. Some leaves are crushed and placed on painful tooth.

**Benkara malabarica Lam. (Rubiaceae)**

About 2 gm of fresh stem bark is made into paste and is applied externally on the spot once a day for two days or the cut end of a small piece of fresh stem is rubbed on a rough floor, the rubbed end is then shown to the smoke of incense stick and is pressed on the spot of scorpion sting.

**Boerhavia diffusa L. (Nyctaginaceae)**

Plant paste with black pepper is given orally and applied on the snakebite area. Root powder with equal amount of sugar candy is taken to cure cough. Leaf juice with black pepper powder is taken orally in empty stomach twice a day for 7 days to cure anasarca. Leaf juice with cow milk is applied on the eyelids to cure ophthalmia, conjunctivitis and swelling of eyes.

**Boswellia serrata Roxb. ex Colebr. (Burseraceae)**

A handful of stem bark is mixed with 2 or 3 small onions, ground into a paste and orally administered for indigestion.
**Buchanania lanzan Spreng. (Anacardiaceae)**

Two teaspoonful extract of fresh leaves and stem bark (in equal proportion) crushed and mixed in a cup of milk is taken internally once in a day for 7 days to cure temporary male sterility and also to purify blood.

**Butea monosperma Roxb. (Fabaceae)**

For menorrhagia and leucorrhoea, one teaspoonful powder of stem bark crushed with *Cuminum cyminum* mixed in water is taken internally once in a day for 4-5 days.

Fried gum is mixed in sweet preparation locally called ‘Laddus’ and given to women in leucorrhoea. 1/4th cup warmed bark extract is given orally to ladies to stop excessive bleeding after child birth.

**Calotropis gigantea (L.) R.Br. (Asclepiadaceae)**

Cotton is wetted with plant latex and placed on painful tooth area. Dried plant is burnt to get ash which is used to massage the tooth and gum after brushing the teeth for curing plaque, caries and pyorrhea.

**Calotropis procera (Ait.) R.Br. (Asclepiadaceae)**

One teaspoonful of flower powder along with *Piper nigrum* powder is mixed in a glass of water and is taken internally, daily twice for two days to cure stomach pain. For dog bite, 2-3 drops of plant latex is applied at the affected parts.

**Cansjera rheedii J. Gmelin (Opiliaceae)**

Leaves cooked with dhal *Cajanus cajan* and eaten like green vegetable to get relief from postnatal pains.

**Canthium dicoccum (Gaertn.) Teijsm. & Binn (Rubiaceae)**

Stem bark and leaves pounded with leaves of *Hemionitis arifolia* and the extract mixed with buttermilk of hot water. About 200 ml of filtrate is orally given once a day for 3 days as an abortifacient. It is claimed that this extract can abort the 3 month old foetus.
A handful of stem bark boiled in 1 litre of water till it is reduced to 100 ml. The filtered extract orally administered morning and evening for one day in order to get relief from gas trouble.

**Capparis sepiaria (Capparaceae)**

Dried leaves are burnt and pound to a fine powder. Ash of cotton cloth is mixed with it and applied on tooth ache area.

**Casearia elliptica Willd. (Flacourtiaceae)**

A few pieces of stem bark with a small piece of sandalwood, ground into a fine paste with buttermilk. The resultant paste applied on the dog bitten spot, 3 times, for only one day. *Diet*: Avoid salt, oil and tamarind till recovery.

**Cassia fistula L. (Caesalpiniaceae)**

For snakebite, one teaspoonful fruit powder is taken internally. For breast cancer and wounds, paste of fruit crushed in water is applied at the affected parts till it cures.

A piece of stem-bark is ground with juice of 1-2 lemon fruits. About 50 gm of the resultant paste is orally administered for snakebites of less poison. A little of the above paste can also be applied on the snake bitten spot. *Diet*: Avoid salt and chilli till recovery.

**Casuarina equisetifolia L. (Causarinaceae)**

The whole plant is crushed and the paste is applied at the affected parts for four days, as a remedy for bone fracture.

**Ceropegia juncea Roxb. (Asclepiadaceae)**

About 4-5 drops of stem latex is applied externally on the spot of any insect bite three times a day for five or six days.

**Chloroxylon swietenia DC. (Rutaceae)**

Two to three pieces of stem bark mixed with that of *Anogeissus latifolia* (DC.) Wall. ex Bedd. and *Disopyros montana* Roxb. in equal amount, boiled in 1 litre of water till the same reduced to 200 ml. The filtered extract is orally
administered for the treatment of snake bites, repeated till poisonous effect reduces. Simultaneously, 50 ml of leaf extract of *Leucas aspera* (Willd.) Link and a handful of leaves of *Andrographis paniculata* (Burm.f.) Wall ex Nees and *A. alata* (Vahl) Nees should also be orally administered.

**Cissampelos pareira L. (Menispermaceae)**
Ten to fifteen grams of fresh root paste is taken along with 100 ml of hot water in empty stomach for three days in single dose to cure stomach-ache.

**Cleome gynandra L. (Capparaceae)**
The juice extracted from the leaves is dropped into the ear to get relief from tooth ache.

**Clitoria ternatea L. (Fabaceae)**
White flower plant ash (along with root) with cow butter is taken orally for one month to clean pimples and facial spots. Purple flower juice (4-5 drops) is poured directly into the eye to cure conjunctivitis, and eye pain. Fresh root paste of purple flower plant is taken orally with honey to cure lumbago and colic. Leaf juice with little rock salt is applied directly to the eye to get relief from eye swelling, night blindness and blurred disease.

**Cocculus hirsutus L. (Menispermaceae)**
For spermatorrhoea, shade dried whole plant is powdered, one teaspoonful powder mixed in a glass of water is taken internally, daily, once for three days.

**Colocasia esculenta (L.) Schoot (Araceae)**
The fresh leaves pounded with buttermilk and fed to cattle to revert the induced sterility and to reproduce.

**Commelina benghalensis L. (Commelinaceae)**
For wounds and scabies, paste of whole plant is applied at the affected parts till it cures.

**Corallocarpus epigaeus (Rottler) C.B.Clarke (Cucurbitaceae)**
One teaspoonful of tuber paste mixed with 100 ml of hot water, orally administered for snakebite, for only one time. No diet restriction.
**Crotalaria prostrata Roxb. (Fabaceae)**

For leucorrhoea, the whole plant is crushed in buttermilk and is taken internally, one cup every day for three days. For snakebite, 10 gm fresh leaves crushed in water is taken internally. Paste of whole plant is applied all over the body as a remedy for improper circulation of blood.

**Cucumis melo L. (Cucurbitaceae)**

A few fruits crushed and the juice given orally to those who consumed poison in order to make quick and full vomiting.

**Curculigo orchioides Gaertn. (Amaryllidaceae)**

Paste of fresh rhizome with equal amount of sugar candy is given empty stomach with cold water for 21 days to cure blood-setting piles. Rhizome powder with raw cow milk is prescribed for improvement of memory power in children. Leaf juice with a little amount of honey is prescribed for intestinal worms, indigestion, gastric ulcer and stomach disorders of children. One teaspoon of rhizome powder is taken with warm water, twice a day in empty stomach for all types of skin disorders. Two or three teaspoons full of decoction of fresh rhizome is taken with one teaspoon of honey in empty stomach for 21-30 days to cure kidney stone and rheumatic fever.

About 100 gm powder of dried tuber is mixed in 1 kg semisolid form of milk (prepared after extensive boiling of buffalo milk) and taken early in the morning for 7 days as an eye tonic and also to increase potency. Tuber extract is applied locally in gonorrhoea and syphilis.

**Cynodon dactylon Pers. (Poaceae)**

The leaf juice is taken orally along with one teaspoonful cumin powder in empty stomach in single dose for a period of three to five days to improve digestion.

**Deccania pubescens (Roth) Tirvengadum var. candolleana (Wight & Arn.) Trivengadum (Rubiaceae)**

The fruits are shade dried and powdered. This is mixed in goat’s milk and orally administered to women for 5-6 days for total sterility.
**Dolichandrone falcata Seem. (Bignoniaceae)**

For menorrhagia and leucorrhoea, one glass extract of stem bark is taken internally once a day for three days.

**Embelia ribes Burm.f. (Myrsinaceae)**

Decoction of seed powder of the plant and *Coriandrum sativum* (50 gm each) along with 2 teaspoon of honey is taken in empty stomach early morning and evening for 15-20 days to cure headache, migraine, and dizziness. Seed decoction with honey is also taken in empty stomach twice daily for 15 days to cure haematemesis, gastric, bile and lumbago (stabbing backache). Two to three fruits of this plant are chewed in case of acidity.

**Enicostema axillare (Lam.) A. Raynal (Gentianaceae)**

For blood purification, one glass extract of fresh leaves is taken internally every day for 15 days.

**Ficus benghalensis L. (Moraceae)**

One or two drop of latex is taken orally by men up to one or two months daily to make semen thick and to regain sexual potentiality.

**Gloriosa superba L. (Liliaceae)**

For piles, paste prepared from tuber and zinger in equal proportion is applied at affected parts for 3 days. For skin diseases, the tuber crushed and the paste is applied at the affected parts once every two days till it cures.

Root extract of *Solanum surratanse* is mixed with tuber extract of this plant and is given orally to women as abortifcient.

**Hemidesmus indicus R.Br. (Asclepiadaceae)**

Paste prepared with about 10 gm root with 2-3 black pepper is taken in 3 doses daily to cure diarrhoea of small kids. A small root piece with 7 rice and a little turmeric powder is tied around right hand with the help of 7 thread pieces to cure cold, fever and stomach ache. One teaspoon root powder with honey is prescribed for 3-4 days to small kids to cure mouth infections, stomatitis, herpes and diarrhoea. About 20 gm root, 20 gm stem bark of *Soymida febrifuga* and 10 gm *Terminalia*
*bellirica* fruit powdered together is prescribed twice daily in empty stomach for 21 days for treating indigestion, stomach disorder and acidity.

**Hemionitis arifolia (Burm.) T. Moore (Hemionitidaceae)**

A handful of fronds made into a paste, mixed in a glass of hot water, orally administered two times a day, for less poisonous snake bites.

Twenty grams of leaf paste is applied externally on stomach once a day for a span of three days to get relief from colic symptoms.

**Hibiscus rosa-sinensis L. (Malvaceae)**

Handful of leaves and flowers crushed in ghee and the paste is applied over the head part where hairs have been lost as a remedy for reformation of hairs.

**Hiptage benghalensis (L.) Kurz (Malpighiaceae)**

About 50 to 100 ml of plant sap (when the stems cut, water will be oozing drop by drop) orally administered in empty stomach during early morning as a cooling agent to reduce body heat.

**Hyptis suaveolens (L.) Poit. (Lamiaceae)**

A spoonful of 10 gm seeds extract is taken internally once a day for 3 days as a remedy for menorrhagia, leucorrhoea and temporary male sterility.

**Jatropha gossypifolia L. (Euphorbiaceae)**

Decoction of root is given to tribal ladies orally in uterus diseases.

**Lannea coromandelica (Houtt.) Merr. (Anacardiaceae)**

Stem bark with that of *Cassia fistula, Spondias pinnata, Holoptelea integrifolia* and leaves of *Dendrocalamus strictus* ground together and boiled with garlic and pepper. 100 ml of this concoction is given orally for women on empty stomach for 3 days after menstruation between 2\textsuperscript{nd} and 5\textsuperscript{th} day as an antifertility drug.

**Leonotis nepetifolia (L.) R. Br. (Lamiaceae)**

The whole plant is roasted and crushed; the paste is applied at the affected parts till it cures as a remedy for wounds, head sores and dark patches.
**Leucas aspera Spreng. (Lamiaceae)**

One to two drops of leaf juice is poured in one of the nostrils to cure migraine and headache. Pellets made from the plant leaf and black pepper is prescribed for 7 days in empty stomach to cure cold and fever. Leaf juice and honey is taken twice a day to cure phlegm, rheumatism, bilious fever, intermittent fever, cough, asthma, fistula and gastric disorder. Leaf paste with black pepper is given for snakebite as an antidote and leaf juice is poured into nostrils. Leaf paste in milk with honey is taken thrice daily for 7 days to cure typhoid.

**Maytenus senegalensis Lam. (Celastraceae)**

For leucorrhoea and menorrhagia, one cup of root extract is taken once a day for 3-4 days.

**Mimosa pudica L. (Mimosaceae)**

Warmed root paste is plastered with the help of a cloth on boils to get relief. Paste of root fried in castor oil is applied on deep cut wounds to stop bleeding and for healing. Warmed leaf paste is applied around furuncle, abscess and boils to burst and release of pus. Leaf paste is applied on the burst boils and itches for quick healing. Paste of root fried in ghee is applied on caries teeth for relief from toothache. Leaf paste is applied on forehead to get relief from headache and migraine. Leaf paste with honey is prescribed twice a day in empty stomach for 3 to 4 days for stomachache and intestinal worms.

10-12 fresh leaves are made into paste with a few drops of water along with 3-4g of fresh flowers of *Lantana camara L.* var. *aculeata* (L.) Mold. and a small bulb of *Allium cepa L.* This paste is applied externally on the spot two times a day for one week for any unknown insect bite.

**Nothopegia colebrookiana (Wight) Blume (Anacardiaceae)**

5-10 raw seeds or 1 or 2g of shade dried leaf powder is consumed along with 100 ml of cow’s milk twice a day for seven days for snake bite.
**Pachygone ovata** (poiret) **Hook.f & Thompson** (Menispermaceae)

One teaspoonful root-powder mixed with an equal amount of leaf-powder of *Hemionitis arifolia*, mixed in a glass of hot water, given orally for treating snake bites.

**Pedalium murex** L. (Pedaliaceae)

When 8-10 fresh leaves are rotated in half litre water, the water becomes mucilaginous. Half cup of this water is taken once a day for seven days to cure gonorrhoea by the tribals.

**Pergularia daemia** (Forssk.) **Chiov.** (Asclepiadaceae)

Ten to fifteen grams of fresh leaves are made into paste along with ten to fifteen grams of garlic and applied externally three times on stomach and on the dorsal area of the stomach for one day to control gastric trouble.

Plant latex is taken on cotton and placed on affected area for relief from tooth ache.

**Phyllanthus fraternus** **Webster** (Euphorbiaceae)

Root-powder with black-pepper is taken with water to cure amoebic dysentery and diarrhoea of children. Plant-juice is taken with water in empty stomach in the morning for 7 days to cure jaundice. Leaf or root extract with black pepper and cow urine is taken twice a day for 15 days in empty stomach to cure dropsy, anasarca, rheumatism and body ache. Decoction of root of the plant, root of *Piper longum*, rhizome of lotus and stem of *Pterocarpus santalinus* is taken with one cup of cow urine in empty stomach for 7 days during intermittent fever and fever due to cold.

**Phyllanthus reticulatus** **Poiret.** (Euphorbiaceae)

A handful of leaves added with equal amount of *P. amarus* leaves, ground into a fine paste, mixed in 200 ml of cow’s milk, orally administered 3 times a day for 3 days to cure venereal diseases and also to reduce excessive body heat.
**Plumbago indica L. (Plumbaginaceae)**

Tablets made from paste of equal amount of root of *Plumbago indica*, *Cissampelos pareira* var. *hirsuta*, *Caesalpinia bonduc*, flower of *Pterospermum acerifolium* and black pepper seeds is taken with water in empty stomach for 21 days to cure stomachache, acidity, bile, constipation and lower abdomen pain. In case of cuts, wounds, sprain and body ache, castor or sesame oil is first applied on the effected area and then a paste of 3-4 leaves of the plant is applied for relief.

**Plumbago zeylanica L. (Plumbaginaceae)**

Fresh or dried roots are powdered with jaggery without adding water. About 100 gm of the paste is given orally in a single dose for pregnant women on empty stomach for abortion of up to 2 month old foetus.

**Pongamia pinnata (L.) Pierre (Fabaceae)**

Root bark of *Pongamia pinnata* with stem bark of *Carica papaya*, *Holoptelea integrifolia*, *Azadirachta indica*, *Moringa pterygosperma* is pounded and boiled with pepper and garlic. The filtered concoction given orally on empty stomach thrice a day for 2 days as abortifacient.

**Pupalia lappacea (L.) Juss. var. lappacea (Amaranthaceae)**

About 3 gm of tender shoots and 3 gm of inflorescences are made into paste. This paste is applied externally on the spot three times a day for five to seven days for any unknown insect bite.

**Rhinacanthus nasutus (L.) Kurz (Acanthaceae)**

One teaspoonful aqueous extract of fresh leaves is taken orally or 1-2 gm of shade dried leaf powder and is consumed along with 100 ml of cow’s milk twice a day for four or five days for snake bite.

**Senna auriculata L. (Caesalpiniaceae)**

Ten gm young leaves crushed in curd are taken internally for two days to keep body cool. Five to ten grams of sepals and petals removed from flowers, ground with little amount of *asafoetida* and papavar along with cheese using hot water is given orally for two days in single dose to relieve colic pain. Flower and
young shoots are tied over the stomach at least two times in a day for three continuous days to get relief from colic pain even among adults.

**Solanum nigrum L. (Solanaceae)**
Leaves are ground and juice is extracted by filtering through cotton and is used as an ear drop for relief from tooth-ache.

**Soymida febrifuga (Roxb.) A. Juss. (Meliaceae)**
The decoction of 100 gm stem bark with 10 gm jaggery (dark sugar made from *Saccharum officinarum* juice) is given for 1-3 days to regularise menstruation.

**Swertia corymbosa (Griseb.) Wight ex C.B. Clarke (Gentianaceae)**
Shade dried plant are powdered and one teaspoonful of powder is taken orally along with water in empty stomach for a period of two or three days to get relief from stomach-ache.

**Tamilnadia uliginosa (Retz.) Tirvengadum & Sastre (Rubiaceae)**
Fresh fruits pounded with buttermilk, given orally for women for total sterility.

**Terminalia chebula Retz. (Combretaceae)**
The pericarp of the fruit along with turmeric is made into a paste and taken orally three times a day for a period of two to three days to arrest dysentery.

**Tinospora cordifolia (Willd.) Miers ex Hook.f. & Thomson (Menispermaceae)**
Stem powder with equal amount of honey is taken in empty stomach twice daily to cure headache and migraine. Decoction of stem and *Embelia ribes* fruits with honey is taken twice daily in empty stomach to cure headache. To cure arthritis, rheumatism and inflammation, one teaspoon of stem decoction with half tea spoon honey is taken in empty stomach for one month. Stem decoction with sesame oil is applied on body to get relief from rheumatism, body pain and inflammation. Leaf powder with black pepper powder is taken with raw milk twice daily in empty stomach to cure jaundice. Juice from equal amount of roots of the plant, *Ricinus communis* and *Vanda roxburghii* is taken with equal amount of water in empty stomach for 7 days to cure rheumatism, body ache due to gastric ulcer and colic.
The decoction of fresh leaves is considered very effective against leucorrhoea by the tribal women when taken orally.

**Tribulus terrestris L. (Zygophyllaceae)**

Fruits are baked and made into powder with common salt. Powder is massaged into teeth and gums for relief from tooth ache.

The fruit powder is taken orally to cure renal disorder and leucorrhoea. The mucilaginous infusion of plant is taken orally by men to cure impotency and for vitality. The fruits are powdered with the seed of *Sesamum* and taken orally with milk to cure impotency and increase the number of sperms.

**Tridax procumbens L. (Asteraceae)**

For kidney stones and heel cracking, 10 gm fresh leaves are crushed and a cup of extract is taken once a day for 3 days.

**Vitex negundo L. (Verbenaceae)**

Crushed and warmed leaves are plastered on the body part with thin cloth to get relief from pain. Watery sap from warmed stem is given to children to cure cough, catarrh and cold fever. Stem sap with sesame oil is poured into ear to cure otalgia and suppurative otitis media. Crushed leaves fried in cow ghee are applied on wounds for healing. Root decoction is prescribed twice a day in empty stomach to cure rheumatism.

Leaves are crushed together with common salt and placed on painful tooth to get relief from tooth ache.

**Waltheria indica L. (Sterculiaceae)**

Fifty grams of fresh bark of the root is soaked in 200 ml of water for twelve hours and the filtrate is taken orally in empty stomach for three days in single dose to get relief from bowel disorder.

**Wattakaka volubilis (L.f.) Stapf. (Asclepiadaceae)**

A handful of leaves added to that of *Gymnema sylvestre*, ground into a paste, mixed with porridge made from the seeds of *Pennisetum americanum* (L.) Leeke
(Poaceae; ‘Cumbu’) orally administered for treating eruptions over body and face due to excessive heat.

**Wedelia chinensis (Osbeck) Merr. (Asteraceae)**
Teaspoonful of leaf-powder added to 200 ml of goat’s milk or hot water and orally administered in early hours for three days to treat jaundice. Handful of cooked leaves eaten as raw followed by a glass of buttermilk with a pinch of ground dry ginger is taken internally for 3 days for treating jaundice. *Diet:* Oily and hot stuffs and tamarind should be avoided.

**Withania somnifera (L.) Dunal (Solanaceae)**
The tribals give root powder orally to male patients with asthma and bronchitis, but not to ladies since it produced a narcotic effect and acts as an abortifacient. Decoction made from tubers of *Chlorophytum borivillianum,* whole plant of *Withania somnifera,* root of *Asparagus officinalis,* seeds of *Mucuna pruriens,* seeds of *Phaseolus mungo* and Selageet stone is given to men to increase sexual potency and fertility.

**Ziziphus xylopyrus (Retz.) Willd. (Rhamnaceae)**
Fifty grams of fresh bark of the stem is soaked in 200 ml of water for twelve hours and the filtrate is taken orally in empty stomach for a period of three days in single dose to relieve stomach-ache.

5.3 **Forms and Preparations of Medicine**
This part of the Chapter is the result of discussion, the researcher had with medicinemen and women of the Kalrayans. The discussion that emerged revealed the forms of medicine which they adopted in their preparation. When compared with tribal medicine men in other hills of Tamilnadu, the data are nearly similar.

a. **Preparation of medicine**
The preparation of drug and medicine among the Kalayan communities is really an art. Most of the tribal medicines are prepared either as a single drug occurred from single plant or plant parts. The combination with other plant, animal organ, rock, mineral, salt, etc., in tribal medicine is not uncommon.
b. Forms of Medicine: (i) Infusion (ii) Decoction (iii) Mixture (iv) Syrup (v) Paste (vi) Powder (vii) Pills and small Cakes (viii) Extract - both in water and in alcohol (ix) Fresh juice by squeezing fresh materials (x) Fomentation (xi) Medicated oil—both from plant parts and from animal fats (xii) Drops (xiii) Massage balm (xiv) Fumes (xv) Burning ash (xvi) Plaster (xvii) Alkali, etc.

Dose: In general, the dose prescribed for each medication is the adult dose. It is proportionately reduced to the age of the patient. Pounding the plant or plant parts into paste or steeping the pounded material in water to get the extract or squeezing them for juice and fomentation are common practices among the Santal communities. Pounded products are generally administered directly or in the forms of pill and cake. For rheumatic swelling and boils, either boiled root, bark, leaf or the paste of the plant parts is applied as poultice. Dry plant parts are usually made into powder. In certain cases barks or roots of medicinal plants are chewed and sucked.

Fresh Juice: It is the extract made by squeezing any fresh medicinal plant. It is believed that the extract has the highest potency.

Paste: Both fresh and dried plants or plant parts, in general, are made into paste on a stone and used both internally and externally.

Extract (Both water and alcoholic): The aqueous extract made generally from fresh plant is used internally.

Infusion: It is practically the soaking of dry medicinal plants or plant parts in fresh water at normal temperature.

Decoction: It is the preparation of the boiling of both dry and fresh raw materials in water 1:10 ratio and to reduce the quantity of the water into about ¼ of the original volume.

Mixture: This is either the combination of the powders of dried materials or the combination of the decoctions and extracts of plant materials in a certain ratio. It has specific formula and it can be preserved for a significant period of time.

Powder: The dried materials are pounded and made into fine powder.

Pill and Small Cake: It is practically the tablet form of powder drug.

Syrup: It is a liquid tonic prepared as per prescription in combination with honey for making it tasty.
**Fomentation:** In general, fresh leaves after heated on fire are applied externally.

**Medicated Oil:** The medicated oil is a product obtained after boiling some specific plant or plant parts in the specific oil. It is used for specific purpose only as prescribed.

**Ointment:** It is a preparation of extract from animal fats, bee-wax, oils and gum-resin.

**Drops:** The fresh juice of the plant and fresh seed oil are used as drops in eye and for ear diseases.

**Fume:** The fume is obtained after burning the dried material of the specific medicinal plants or plant parts. It can also be obtained by putting fresh medicinal plants in boiling water. In general, it is applied and inhaled as medicine.

**Plaster:** It is practically a combination of the pastes of fresh plant materials in a specific ratio. Sometimes lime is added in it.

**Alkali:** It is a decoction of burned plant materials.

**Beliefs and Taboos regarding Medicinal Plants**

The Kalrayan tribals have certain beliefs and taboos about medicinal plants:

1. Plants with latex have medicinal value.
2. Green plants before flowering are more effective as curative agents than the dried plants.
3. Roots are considered more effective medicine than the aerial parts of the plants.
4. Plants for the uses of medicinal purpose in various diseases should be collected in different times as in the morning, midday or in the afternoon.
5. They consider that in combination with fruits of long pepper (*Piper longum*) the medicine becomes more effective.
6. The barks in medicinal uses are taken from that side of the plant on which the rising sun shines.
7. The tribals believe that the violation of any taboo makes the medicine ineffective.
5.4 Conclusion

The data collated in this chapter are those shared by local medicine men and women of the Kalrayan villages. These data were compared with those practised by the Paliyans, the Irulas and the Malayalis of the hills of Tamilnadu. The general pattern seems to be similar except the local preparation modalities and dosage administered. Since the tribals’ use of these age-old practices are on the wane especially among the younger generation, there is a need to validate the practices with phytochemical analysis. Now that the Kalrayan hills are exposed to the impact of many welfare schemes and developmental programmes sponsored by Governmental agencies, there is an urgent need to collect the indigenous health care methods. The tribals have to be motivated to conserve the fast depleting medicinal plant resources and use them sustainably. Globally, ethnopharmacology has played an important role in the development of conventional medicine and is likely to play more significant role in future also. In the light of data presented in this chapter, a team work among ethnobotanists, ethnopharmacologists, physicians and phytochemists is essential for the fruitful outcome on ethnomedicinal research in the Kalrayans.