

## ETHNOBOTANICAL ASPECTS OF SOME PLANTS OF ARAVALLI HILLS IN NORTH GUJARAT

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**ABSTRACT:** *The Aravalli ranges run along the Sabarkantha district is the ancient region of India, inhabited by tribals living in close vicinity of enriched forest. The present paper contains various ethnobotanical aspects of some plant species used by the tribals for their day-to day requirement. The paper includes the first hand information collected through tribal informants, medicinemen and tribal people of several villages during the field trips in the region for last three years in different seasons.*

*The paper provides an account of the ethnobotanical uses for basic necessities and welfare of tribal life, medicine and hygiene, fuel fodder, fibres food, shelter, dye, oil and other miscellaneous purposes.*

**Keywords:** *Ethnobotany, Aravalli Hills, Sabarkantha, North Gujarat.*

### INTRODUCTION

The Aravalli ranges run along the northern fringe of the Gujarat State and extends in Rajasthan. This, the ancient region of India has its unique place in the history of mankind and is a precious treasure of plants. The district of Sabarkantha is known for its religious and historical places includes various ashrams of ancient rishis Bhrgu, Chyawan, Kanva, Agastya, Atrey who were know for Ayurvedic system of medicine. As a part of Aravalli Hills, the forest of this district is rich in primitive tribes and medicinal plants. The vegetation of the region is generally of dry deciduous type includes dry teak forests. Hence the region provides the basic requirement for the study of Ethnobotany.

The district Sabarkantha is situated in the north eastern part of Gujarat state between

23<sup>0</sup>03' and 24<sup>0</sup>30' north latitudes and 72<sup>0</sup>43' and 73<sup>0</sup>39' east lonitudes.

### METHODOLOGY

The field trips during different seasons were organized. Existing plant species were collected during their flowering and fruiting seasons, on the basis of information collected by means of personal visits with aged tribal people, medicinemen, local tribal leaders, other individuals and informants, familiar with the usages of plants in their day-to –day life. Besides this, two, questionnaires, one for tribal individual and another for medicine man were prescribed in vernacular (Gujarati) language.

### ENUMERATION OF PLANTS:

In the following enumeration, the plants are arranged in alphabetic order of their botanical names, family in parentheses, local names, followed by uses.

**1. *Abelmoschus Manihot* (L) Medic.  
(MALVACEAE) Ran (Jangli) Bhindi**

- The sticky extract of whole plant is obtained when crushed and soaked in water. The extract is used to remove dirt during preparation of 'gool' (jaggery) from canejuice.

- The strong fibres obtained from stem are used in preparation of ropes and strings

- Sling (gofan), a weapon for throwing stone is prepared from the fibres.

- The weapon 'gofan' is used to drive off the birds which spoil the crops.

**2. *Abrus precatorius* L.  
(PAPILONACEAE) Chanothi**

- The leaves are chewed and the juice is swallowed in case of hoarseness (sore throat).

- The juice of leaves mixed with some edible oil and applied to the painful part to relieve pain and reduce swellings due to rheumatism.

- The necklace of seeds is worn by ladies as an ornament

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- The leaves are chewed to relieve pain due to ulcers in mouth.

- The oil of the seed or paste of the seed is applied externally on hair to prevent falling of hairs (Undari) (i.e Tinea capitis) and to prevent baldness

- The paste made of root of this plant and root of plant chitraka (*Plumbago zeylenicum* L.) is applied externally on leuco – dermatic spots (Kodh).

**3. *Acacia chundra* (Roxb. Ex. Rottl. ) willd  
(MIMOSACEAE) Kher**

- The 'katha' is extracted from its heart wood

- The Wood is used in cart wheel hubs, posts and agricultural implements like plough and others and sambelu (The solid cylindrical wooden pestle).

- The gum (Kheri gum) is eaten by pregnant women to protect embryo (foetus).

- The paste of stem bark or seed is applied over wounds and also on parts affected due to skin diseases.

- The small amount of powdered 'Katha' is applied over ulcers found in the mouth

- The crushed stem bark is boiled in water, the wounds and ulcers are washed by the water, as it is a good antiseptic and healer.

**4. *Acacia nilotica* (L) Del. Subsp. Indica  
(Bth.) Brenan (MIMOSACEAE ) Baval**

- The young fresh twig is used as tooth brush and cleansing the tounge. On chewing the bark release tannin. The tannin being a protein binder inactivates tooth microflora, thus

protecting tooth from the bacterial action. The flexible fibres help cleaning teeth crevices acting like a brush. It is a very effective mouth wash.

- Pods (paidia) possess galactagogue property, hence eaten by goats, sheep and other cattles.

- Leaves and pods boiled in water and then made into paste and poultice used externally over eyes for relieving pain.

- The wood is used as fuel.

- The wood is used for making cart-wheels and agricultural implements like plough and Sambelu (Wooden pestle)

- The powdered stem-bark is given internally on cough and asthma

- The powdered stem-bark is sprayed on decaying ulcers, wounds and sores of cattle and

human beings to prevent growth of microflora and for healing.

- The crushed stem-bark boiled in water. Then bath is taken with this water to cure any skin diseases.

- The dried branches are used as field fencing. The 'bavalio gum' is fried in ghee. Then

powdered gum mixed with sugar (sakar) and eaten as a nutritive tonic and aphrodisiac in cases of sexual debility.

- The stem-bark used as dye and also tanning leather

- Leaves and tender branches eaten by goats.

#### 5. *Adansonia digitata* L.(BOMBACACEAE) Gorakh Amlo

- This is a historic tree at village PAL of Vijaynagar taluka. The tree is named after Gorakhnath-the Hindu monk of old, who is said to have taught his disciples under this tree. As per the local information the tree is as old as 400 to 500 years.

- The pulp of the ripe fruit is divided into seven equal parts and then for seven days, each part is mixed with equal quantity of sugar (sakar) and then water is added in the mixture and kept overnight to the open sky. This mixture is filtered and filtrate is administered orally in early morning to prevent miscarriage or misdelivery and for protection of embryo and any gynaecological complaints.

- The leaves are used as fodder.

- The 'Gum' from trunk of the tree is kept in mouth to remove heat in the mouth.

- The ripe fruit pulp is given internally on dysentery.

#### 6. *Adinacordifilia (Roxb.) Bth.& Hk.* (RUBIACEAE) Haldarvo

- The leaves are used as fodder.

- The leaves are used to prepare patrala (dish) and padiya (cup).

- The decoction of trunk (stem) bark is used to wash non-healing ulcers, wounds and boils for fast healing.

- The juice of tender leaves or fresh flowers is inhaled for short time to cure tooth ache.
- The wood is yellow (like powdered Halder-Curcuma longa L.) and used in preparation of toys and furniture.
- The trunk(stem) bark with bark of the plant Baheda [Terminallia bellirica (Gaertn) Roxb.], Biyo (Pterocarpus marsupium Roxb.) and Garmalo (Cassia fistula L.) used as dye.

**7. *Aegle marmelos* (L) Corr. (Rutaceae)  
Billi**

- The fruit is called 'Billu' its roots is on the constituents of "Dashmulkwath'.
- The ripe and tender boiled fruits are edible.
- The paste of fruit pulp or leaves is applied on ulcers caused in the clefts of feet due to Foot and Mouth Disease of cattle, to stop mocribial growth and for fast healing.
- The fresh leaf juice is dropped into the ear in ear complaints.
- The leaves are sacred and used during worshipping 'Lord Shiva'.
- The pulp of unripe fruits is consumed to cure dysentery, diarrhea, cholera and other stomach troubles.
  - Gummy substance of the fruit is used as a varnish for pictures and adds brilliancy to water based paints.
  - The dried fruits freed from pulp are used as pill boxes.

- The water boiled leaves or juice of fresh leaves applied on swellings due to rheumatism.
- The leaf poultice applied on eyes in the treatment of eye complaints.
- The root paste is applied on scorpion bite.
- The decoction of root is given internally on tetanus (Dhanur).
- The small amount of ripe fruit pulp is given to cure constipation.

**8. *Alangium salvifolium* (L.f.) Wang  
(ALANGIACEAE) Ankol**

- The leaves of this plant and leaves of plant Aval (Cassia auriculata L.) together crushed and paste is made. Such paste is applied on inflammations caused due to rheumatism to relieve pain and swellings.
- The paste of the seeds is applied on head to prevent baldness.
- The decoction of root bark is given orally to pregnant women for abortion.
- The paste of root bark is plied on decaying wounds and ulcers.
- The trifurcating wooden pole is used as stand to put drinking water pot.
- The branches with leaves are used for hedge of fields and huts.
- The wood is used in manufacture of agricultural implements, cart wheels and also as tool handles.
- The ripe fruits are eaten.

- The paste of stem bark is used on poisonous animal bite.

**9. *bahunia racemosa* Lam.  
(CAESALPINIACEAE) zinzi/Jinji**

- The leaves are used as 'bidipatta' for making bidis.
- The paste of stem bark or leaves is applied on tumors and boils.
- The decoction of stem bark given internally for seven days to a female to stop excess pradar (menorrhoea. Leucorrhoea).
- The stem bark or flowers crushed with the leaves of plant 'Kothi' (*Limonia acidissima* L.) and the extract is mixed with water and given internally to check diarrhea.
- The stem bark or flowers of this plant and root of plants 'bor' (*Zizyphus* sp) and 'Khakhro' (*Butea monosprma*) crushed and extraction with water given internally to stop diarrhea and dysentery
- The powdered leaves or stem bark are smoked to cure cough and asthma.
- Leaves used as fodder.
- The bark fibres obtained from stem after soaking and pounding used for making ropes.
- The petals Kept in sugar syrup and 'Gulkand' is prepared which is eaten to sure leucorrhoea, menorrhoea and diarrhea.

**10 *Butea monosperma* (Lam.) Taub.  
(PAPILIONACEAE) Khakhro/palash**

- The Flowers are used as ornament during Holi festival.
- The flowers yield orange dye and used during Holi festival.
- The decoction of stem-bark is given two to three days internally to cure urticaria(shilas)-eruptions suddenly appear on skin.
- The ash of leaves is added to remove dirt during manufacture of gool(jaggery) from cane juice.
- The root is beaten and made into fine fibres from which ropes and strings are prepared. Such ropes and strings are used for knitting khatalo(cot), to draw water from well, in preparation of brush for white wash and in preparation of 'Lagdu' – an instrument kept on donkey to carry goods.
- The extraction of fresh root is given internally to children to check diarrhea and dysentery.
- The crushed stem bark or root bark filled in wounds to prevent decay.
- The stem bark is crushed and mixed with water in streams, rivers, lakes so that fish when eating becomes unconscious. Thus, stem bark used as fish poison.
- The juice of the root dropped into eyes to treat minor eye troubles.
- The stem bark furnished a very important exudation which hardens into a red brittle-resin known as 'butea

- sum'(kamarkas) which mixed with water and then given orally to cure dysentery, diarrhea and cough with blood as it is excellent astringent.
- The petioles are used during knitting the sling locally called 'gofan' (hunting weapon.).
  - The juice of fresh petiole (dunkh) juice given internally on burning urination.
  - Fresh leaves are used for preparing dish (plate) and cup as locally 'patrala and padiya' to serve cooked solid, semi solid and liquid food.
  - The fresh or dried flowers boiled in water and this water is given orally to human beings and also cattle to start immediate urination.
  - The boiled flowers are applied on abdomen in abdominal pain or colic complaints.
  - The patients suffering from skin diseases are bathed with water made after boiling flowers owing to cooling.
  - The decoction of stem or flowers is sprayed in vagina of the female to cure leucorrhoea (Sweet pradar).
  - The ash of leaves mixed with edible oil applied on eczema and decaying ulcers in cattle.
  - The mature leaves are eaten by goats and buffaloes for good health and to increase lactation.
  - The leaves sprayed on the soil to increase the fertility of the soil and to prevent growth of the weeds.
  - The leaves sprayed on the soil to increase the fertility of the soil and to prevent growth of the weeds.
  - The leaves used for ripening of mango fruits (Keri).
  - The powdered seeds given internally three days for three times (3 to 6gm) and on fourth day, castor oil is given internally to kill and expel intestinal worms.
- 11. *Calotropis procera* (Ait.) R.Br. (ASCLEPIADACEAE) Ankdo**
- The fresh tender root used as tooth brush.
  - The paste of root bark applied or latex or warmed mature leaves bandaged on swellings to cure pain due to rheumatism.
  - The powdered dried flowers mixed with powdered dried fruits of black pepper (*Piper nigrum* L.) and slight common salt then mixed with gool (jaggery) and given internally on dry cough.
  - The tender juice of root introduced in the left or right ear to cure pain in upper or lower molar teeth.
  - Warmed mature leaves are tied on the abdomen on colic complaints.
  - The powdered root bark is given internally on asthma and cough.
  - The latex used in tanning leather
  - The flowers are offered to 'Hanuman' and 'Lord Shiva' during worshipping.

- The juice of mature leaves is inhaled through nostrils to relieve pain due to scorpion sting and also paste of root bark applied on affected part.
- The crushed leaves used in preparation of bidi and smoke to relieve cough.
- To prevent the effect of the dun stroke, the leaves are bandaged on head.
- The stamens and carpels of flowers (Ravaida) eaten for 3 days to cure migraine (adhasisi).
- The floss of fruits is used for stuffing mattress and pillows Lying down in these mattress and pillows. Lying down in these mattress and pillows help in relieving rheumatism.

**12. *Cassia auticulata* L.(CAESALPINACEAE) Aval**

- The leaves of this plant and powdered rhizome of turmeric (*Curcuma longa* L.) is boiled in water then made into a paste and bandaged on swellings due to dislocation of bone.
- A tender stem twing is used as tooth brush to remove toothache.
- The root bark is chewed and the juice is swallowed to cure abdominal complaints. Vomiting and diarrhea.
- It is used as good fodder for goats.
- The dried long stems and branches are used in preparation of wall of the hut and zanpo (gate).
- The stem bark is kept in mouth having inflammation in interior membrane.

- The poultice of stem bark kept on eyes to cure conjunctivites.
- The juice from stem bark is dropped into ear on ear complaints.
- The stem bark is useful in tanning leather.

**13. *Celastrus paniculata* willd (CELASTRACEAE) Malkankni**

- The paste of the root is applied on any poisonous animal bite to remove poisonous effect.
- The fruit twig is offered to God Ganpati on Ganesh chaturthi.
- The leaf juice is given internally as an antidote in overdoses of opium.
- The seeds are soaked in cow's urine and then paste of these seeds is applied on skin diseases.
- The powdered stem bark is filled in the wounds for fast healing.

**14. *Chlorophytum borivilianum* Sant. And *Fernand.* (LILIACEAE) Safed (Dholi) Musli.**

- Leaves are used as vegetables after boiling along with chilly, salt, onion , oil and lemon juice.
- Roots (tubers) are edible. It is one of the good tonic.
- The roots are collected and sold in market.
- Roots are used on anaemic condition

- The tribals collect roots during August to September and sell the tubers at local shop at the rate 200 to 350 Rs/kg.
- The species is becoming very rare.

**15. *Derris indica* (Lam.) Bennet (Papilionaceae) Karanj**

- The Seed oil or leaf juice applied on affected part to cure skin diseases.
- The stem is best tooth brush which prevent any tooth diseases including pyorrhea. If this tooth brush is used for one year, then it cures stammering in children.
- The root paste is applied externally on abdomen to check enlargement of spleen.

**16. *Diospyros melanoxyton* Roxb. (EBENACEAE) Timru**

- The wood is hard used in building, houses, coats and agricultural implements.
- The powdered fruit bark used in pipe (chalam) for smoking to cure asthma and hiccough (Hedki).
- The juice of unripe fruits is applied on wounds to check the bleeding and for quick healing.
- The leaves are used in preparation of bidies. i.e. Bidi patta.
- The ripe fruits are sweet and tasty which and edible.
- The juice of leaves or unripe fruits is given internally in chronic diarrhoea and dysentery.

- The seeds of unripe fruits are eaten.

**17. *Ficus racemosa* L. (MORACEAE) Umro/Umbro**

- The decoction of root is given internally on dysentery.
- Dried ripe fruits are used for preparing country liquor (daru) which is given to asthma.
- The latex is collected in 'Patasa' – an item made wholly of sugar (Sugar biscuit) early in the morning then such patasa administered internally to cure kidney stone and diabetes.
- It is a holy tree.
- The wood is used in preparation of musical instrument 'tamburo'.
- Fruits and leaves are good cattle feed.
- The ripe fruits are edible.
- The latex is used externally on swollen neck of bullock.
- The decoction of stem bark mixed with butter milk and given to cattle to cure diarrhea.
- The latex is applied on boils.
- The wounds are washed with the decoction of stem bark or fruit for fast healing.
- In diarrhea of the pregnant women, the powdered fruit is given internally with honey.



- The tender stem twig is used as tooth-brush.
- The leaves and stem bark used as dye.

**18. *Grewia tenax* (Forsk.) Fiori (TILIACEAE) Gangeti**

- The wood used as walking stick and tool handles.
- The root bark is used as tonic
- The paste of root is applied on venomous animals bites
- The root paste is filled in fresh wounds for fast healing.
- The ripe as well as unripe ;fruits are eaten which reduce the effect of sunstroke.
- The stem bark yields fibres used as ropes, strings for tying bundles of wood or bamboo.
- The leaves and tender stem twigs have galactagogue property hence eaten by cows and goats.

**19. *Helicteres isora* L (STERCULIACEAE) Mardasingi/Antedi**

- The tender twigs and leaves used as fodder.
- The stem bark is stripped and used in weaving 'Khat' (a bed).
- The stem bark as well as stem fibres are used for tough cordage & string.
- The powdered fruit mixed with sugar and given internally on diarrhea.

- The powdered fruit missed with common salt and powdered sunth (dried ginger – *Zingiber officinale* L.) and given internally to cure stomachache and dysentery.

- The powdered fruit mixed with curd and administered orally to cure diarrhea among children.

- The fruit powder mixed with pure castor oil boiled and after filtration such oil dropped in ear to relieve ear complaints.

- The paste of leaves of this plant and eave of plant Aval (*Cassia auriculata* L.) is applied on ulcers and sores to cure pain and for healing.

- The dried fruit of this plant and the dried fruit of plant Mindhal (*Randia dumetorum* L.) tied with cotton string (Nada chhadi) on hand of bride and groom during marriage ceremonies. The fruit of this plant is used to control diarrhea and fruit of Mindhal is used to start vomiting if any food – poisoning during ceremonies.

**20. *Luffa echinata* Roxb. (CUCURBITACEAE) Kukadvel**

- The dried fruit is filled with water and the such water is given internally to the patient for seven days in the morning to cure jaundice.

- The powder of the dried fruits is filled in fruits of date palm-Kharek (*Phoenix dactylifera* L.) Then palm fruit is rapped with thin cloth and covered with wet clay. Such kharek

roasted and then one is eaten daily to cure jaundice.

- The extraction of seeds is given internally to human being as well as to cattle to cure rabies (Hydrophobia).
- The dried 'copra; (Cocos nucifera L.) is fed and also coconut oil given internally, after one hour a dose of powdered seeds is given internally with water to kill and to expel intestinal worms.
- The juice of the root is applied externally to cure poisonous effect due to poisonous animal bite.
- The paste of whole plant is applied externally to cure skin diseases.
- The dehiscent fruit is filled with water and kept for one hour. Then this water smelt by the patient through nostril on opposite painful side to cure migraine (adhasisi).
- The paste of powdered fruit is applied externally to cure pilled.

**21. *Madhuca indica* J.F. Gmel. (SAPOTACEAE) Mahudo**

- Fresh succulent corollas – 'Mahuda' of the flower are eaten raw or cooked and dried corollas are made into powder and compressed into 'Laddus'.
- Dried corollas are used in preparation of local alcoholic drink (country wine) called DARU by fermentation.

- Corollas are edible owing to tonic, appetizer, cooling and nutritive.
- The extract of corollas given in cough.
- The seed is called "Doli" from which edible oil 'Doliyu' is prepared, which is used in place of ghee.
- The fruit wall used as manure.
- The stem bark of this plant and stem bark of plant Kher (Acacia catechu) made into paste and applied externally over wounds or fast healing.
- Adivasi never use its wood as fuel. It is a religious taboo.
- Adivasi never grow this plant because they believe that as the plant grow and reaches the maturity, the person who planted the tree gradually reduce the life time and finally may die. Thus, plantation of the tree becomes fatal.

**22. *Moringa oleifera* Lam (MORINGACEAE) Saragvo**

- The fruits (pods) are used as vegetables and also used in preparation of curry.
- Seeds are called 'White pepper' (Safed mari). Pods act as preventive against intestinal pains.
- Leave used as fodder.
- The crushed leaves boiled in oil and filtrate is applied on pain ful parts due to rheumatism.

- The 'gum' is placed on painful molar teeth to relieve pain.
- The seeds crushed with dried fruits of the plant Black pepper (*Piper nigrum* L.) inhaled to cure headache.
- The paste made crushing leaves of this plant with garlic (bulb (bud) of *Allium sativum* L.), turmeric (powdered rhizome of *Curcuma longa* L.), dried fruits of black pepper (*Piper nigrum* L.), and salt is given internally on dog bite and also applied externally.
- The wood is used as 'ghodi' in musical instrument 'tamburo'
- The pod is used as a 'drumstick'.
- The powdered gum of this plant and powdered seeds of the plant Nagod (*Vitex negundo* L.) mixed with wheat flour and jaggery. The 'sukkdi (sweet cake) prepared from mixture, eaten daily morning to relieve the pain due to rheumatism.

**23. *Oroxylum indicum* (L.) Vent. (BIGNONIACEAE) Tentu**

- It is an important constituent of Dashmulakwath
- The stem bark or root soaked in the water for one day then crushed with water and the decoction given internally to cure jaundice.
- The stem bark paste is applied externally on the inflammations and also on burns.

- The root bark paste is given internally to increase the hunger (appetite.)
- The powdered stem bark is given internally with water for two to three days to cure hemorrhoids and piles.

**24. *Phoenix sylvestris* (L) Roxb. (ARECACEAE) khajuri**

- The roof as well as walls of huts are made from the leaves (fronds) of this plant.
- The leaf (frond) are used as broom
- The long and thick stem is used as a 'mobh' – cross beam supporting roof.
- Ropes are also made from leaves.
- The stem is cut longitudinally into tow pieces and carved, which is used as canal system in place of pipeline for irrigation to carry water across pits.
- The leaves are made into a toran and used to protect wall of the house against rain.

**25. *Pueraria tuberosa* (Roxb.) D.C (PAPILIONACEAE) Khakharvel**

- Tubers eaten by tribal children owing to the sweet and cooling flavour.
- The tuber are eaten as vegetables which is used as emetic tonic.
- The paste of the tuber is tied on inflammations of the joints to reduce swellings and pain.

- As it is galactagogue, the powdered tuber given internally to lactating mother to increase the milk production.
- The tender, long stem used as string to tie fire wood and grass bundle .
- The exudates (latex) from tuber is given internally on dysentery.
- The powdered tubers root is made into flour and mixed with 'daru' (country liquor) given internally to pregnant women for abortion. At the time, the piece of the Kanther (Capparis sepiaria L.) is tied on hairs.

**26. *Sesbania grandiflora* (L) Pers. (PAPILIONACEAE) Agathio**

- The young leaves are used as vegetables
- The curry is prepared from flower to cure fever.
- The fresh leaf juice is added into the nostrils drop by drop to cure fever and cold.
- The vegetable is prepared from flowers and tender parts to cure night blindness.
- The leaves and flowers offered to God during worship.

**27. *Typha angustata* Bory & Chaub. (TYPHACEAE) Gha Bajariya**

- The walls of the huts are prepared from leaves.

- The ash hairy cotton-like substance from spikes is mixed with oil or direct hairy in florescence part is applied externally on deep unhealing wounds and cuts for fast healing.
- The wooly soft inflorescence is used like cotton as a local dressing to wounds and ulcers.
- The wooly part of the dried inflorescence is used during making fire in place of cotton.

**28. *Vitex trifolia* L. or *V.negundo* L. (VERBENACEAE) Nagod/Dhuni**

- The decoction of leaves is filled in bucket and patient sit in the decoction to relieve any pain and swelling.
- The juice of leaves and then castor oil separately administered orally to relieve waist pain.
- The boiled leaves are bandaged on swellings due to rheumatism and on boils to relieve pain.
- The stem twig is used as tooth brush.
- The fresh leaf juice is inhaled or paste of flower applied on forehead to relieve headache.
- Leaves are added in preparation of hair oil as a hair tonic.
- Leaves are boiled in water and then vapour is inhaled through nose (nostrils) to relieve headache and fever.
- The powdered seed mixed with ghee and jaggery (gool) to prepare

‘sukhadi’ (sweet cake) . the sukhadi is eaten daily to cure sciatica and rheumatism.

- The leaf juice is slightly heated and missed with any edible oil and then such oil is dropped in the ear in any ear complaints.
- The decoction of leaves used to wash wounds for healing.
- A pillow stuffex with the leaves is places under the head to relieve headache.
- The crushed dried leaved filled in bidi then smoked to relieve cough and headache.
- The fresh root first given incense and then tied on right arm to cure fever.

**29. *Zizyphus nummularia* (Burm. F.) W.&A. or *Z. Mauritiana* Lam. (RHAMNACEAE) Chani Bordi**

- The fresh ripe are eaten which provide strength to heart
- The tender leaves are crushed with curd and then paste applied frequently to remove the scar(spot) caused due to burning.
- The powered dried fruits are used as food during famine period.
- The dried branches are used as fence in field and house.
- The root juice is given internally to cure diarrhea.

- Lac which is seen on trunk is mixed with water and given internally to the pregnant women for abortion.
- The root is used as toothbrush.
- The leaves are used as fodder.

**Ethnobotanical Aspects:**

The above discussed enumeration for 29 plants can be further analysed taking into consideration their uses. The classification of number of applications for these plants for different uses is given in Annexure – A.

The miscellaneous application include the use of the plant or its part for shelter and housing, for fishing and hunting, for preparation of pill boxes, to increase fertility of soil, to prevent growth of weeds, to prepare toys and furniture and to prepare various domestic appliances.

**From the classification, it is observed that :**

- i) The total number of application are 232, out of which 131 applications are for the medicinal use for different diseases, 11 for food, 10 for fodder, 8 for fibre, 7 for agricultural implements, 7 for cottage industries, 8 for veterinary uses, 6 for tooth brush, 5 fro gum, 2 for dyes and tanning leather each, and 19 for miscellaneous uses. This indicates the importance of plants in the day-to day life of tribals.
- ii) Some of the plants have more than 10 different application for medicinal purpose only. Viz.,

Calotropis procera, Butea  
monosperma, vitex negundo.

- iii) The distribution of number of applications of plants is given below:

No. of Applications	No. of Plants
1-5	9
6-10	14
more than 10	6
Total...	29

- iv) It can be observed that 6 plants viz., *Acacia nilotica*, *Aegle marmelos*, *Butea monosperma*, *Calotropis procera*, *Ficus racemosa*, *Vitex negundo* have more than 10 applications each for different uses, which indicates the intimate human – plant inter-relationship.

### Conclusion:

Tribals are using indigenous knowledge system to use different plants for various uses in their day-to day requirement. For different diseases, they use plant remedies through trial and error and process of experience over hundreds of years from generation to generation.

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### Annexure- A : Classification of no. of application of plants for different uses

S. No.	Name of the Plant	Fd	Fod	Fb	FI	FF	AI	CI	Vt	TB	Gm	Dye	Oil	OR	Sec	TL	Mis	Md	Total
1.	<i>Abelmoschus manihot</i>			1			1	1											3
2.	<i>Abrus precatorius</i>													1				5	6
3.	<i>Acacia cgybdra</i>						1	1			1							3	6
4.	<i>Acacia Nilotica</i>		1		1		1		1	1	1					1		4	11
5.	<i>Adansonia digitata</i>		1															3	4
6.	<i>Adina cordifolia</i>		1			1		1				1						2	6
7.	<i>Aegle marmelos</i>	1							1		1				1		1	7	12
8.	<i>Alangium salliflorum</i>	1				1	1										1	5	9
9.	<i>Bahunia recemosa</i>		1	1				1										6	9
10.	<i>Butea Monosperma</i>		1	1			1	2	1		1	1			1		3	11	23
11.	<i>Calotropis procera</i>										1				1	1		10	13
12.	<i>Cassia auriculata</i>		1													1	1	6	9
13.	<i>Celatrus paniculatus</i>														1			4	5

14.	Cchlorophytum borivilianum	1															1	2	
15.	Deriis Indica									1			1				2	4	
16.	Diospyros melanoxyton	2				1	1									1	3	8	
17.	Ficus racemosa	1	1						2	1		1			1	1	6	14	
18.	Grewia tenax			1					1							1	4	7	
19.	Helictered isora		1	1												2	5	9	
20.	Lufa echinata								1								8	9	
21.	Madhuca indica	1										1			1	2	2	7	
22.	Moringa oleifera	1	1							1						1	6	10	
23.	Oroxyluminducum																4	4	
24.	Phoneix sylvstris			1		1										3		5	
25.	Puerica tuberosa	1		1													4	6	
26.	Sesbania graliflora	1												1			3	5	
27.	Typha anagustata			1												2	2	5	
28.	Vitex trifolia								1	1							12	14	
29.	Zizyphus nummularia	1	1		1					1							3	7	
	Total applications....	11	10	8	1	3	7	7	8	6	8	3	2	2	6	3	19	131	232

## ABSERVATIONS

Fd= Food, Fod= Fodder, Fb= Fibre, Fi= Fuel, FF= Field Fencing, Implements, Ci= Cottage Industry

Vt= Veterinary use, TB= Tooth Brush, Gm= Gum, Dye=Dye, Oil=oil, OR=Ornaments, Sac= Sacred plants, TL= Tanning Leather, Mis= Miscellaneous Me= Medicinal use