

Ethnomedicinal usages of some wild plants of North Bengal plain for gastro-intestinal problems

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Ethnomedicinal usages of 62 plant species commonly used by 11 tribal communities of North Bengal plain for the treatment of gastro-intestinal problems are provided.

Keywords: Gastro-intestinal problem, Ethnomedicine, North Bengal

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The plains of North Bengal is the northern part of West Bengal lying South of the hills of Darjeeling district and of Western Bhutan and stretches as far South as the river Ganga. This flat montane tract consists of the terai-region of Darjeeling district and other districts like Jalpaiguri, Kochbihar, Uttar Dinajpur, Dakshin Dinajpur and Malda. This region of North Bengal has been excluded the Purnea district of Bihar in West and Bangladesh in the East and Northeast (Fig.1)¹. The average annual rainfall is 3,900 mm. The summer is rather hot and the mean maximum temperature varies between 33-35°C and the mean minimum temperature in winter varies between 7.5-10°C. This damp warm climatic condition of the region helps to form a diverse growth of luxuriant vegetation in the tract, which is predominantly covered by the dense forests of sal, mixed with other deciduous flora and the green trees are covered the major part of the terai region of Darjeeling district and the Duars region of Jalpaiguri district. Patches of evergreen forests, riverine Khair-Sisso forests, the Savannah vegetation and dense jungles of shrubs, creepers, herbs are also available²⁻⁹. This tract of land comprises of diverse tribal communities of which the major tribes are *Rabha*, *Rajbanghsi*, *Santal*, *Munda*, *Oraon*, *Polia/Polly*, *Lepcha*, etc. Only and one endemic tribe of the state, *Toto* is also inhabited in the area at their ethnic village Totopara in Madarihat subdivision of Jalpaiguri district.

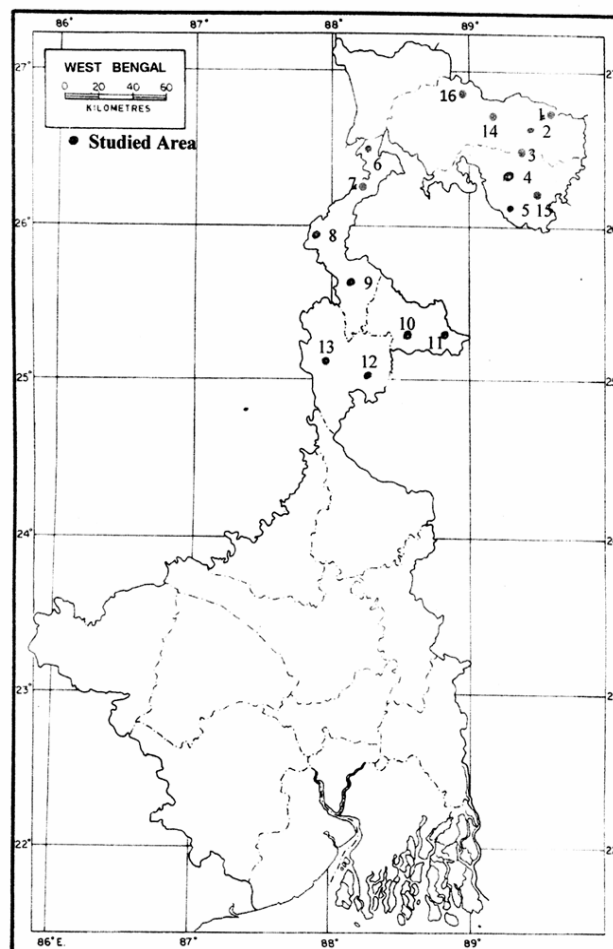


Fig. 1–Map of study area

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Table 1—Uses of plants in tabular form

| Plant name/ family/ English name/ vernacular name | Uses |
|---|--|
| <i>Abrus precatorius</i> L. (Fabaceae) Indian liquorice <i>Kunch</i> (B); <i>Kawet</i> (Sant) | Aqueous extract of fresh leaves is given to cure abdominal pain due to indigestion. |
| <i>Abutilon indicum</i> (L.) Fig. 2 Sweet. (Malvaceae) Indian mallow <i>Madni</i> (B); <i>Mamaruk</i> (Ra) Fig. 3 | Fresh root paste with honey is given to cure dysentery. The medicine is given 3-4 times a day and it is continued till the complete cure. |
| <i>Acacia catechu</i> (L. f.) Willd. (Mimosaceae) Black catechu <i>Khoyer</i> (B); <i>Khair</i> (Sant) | Aqueous extract of fresh stem bark mixed with a tea spoonful of lime water is given at early morning in empty stomach to cure stomachache. If the ailment is not cured, then a second dose is given. |
| <i>Adhatoda zeylanica</i> Medikus (Acanthaceae) Malabar nut <i>Vasaka</i> (B); <i>Basak</i> (Mund) Fig. 4 | Fresh tender leaf extract is given to the children mixed with sugar molasses to cure diarrhoea. The medicine is given 4 times a day for 3 successive days. |
| <i>Aegle marmelos</i> (L.) Corr. (Rutaceae) Bengal quince <i>Bel</i> (B, Or, Ho) | Pulp of unripe fruit is given early morning in empty stomach to cure amoebic dysentery by <i>Oraon</i> . Young fruits are burn to ash; ash is taken with a glass of lukewarm water in empty stomach to cure chronic dysentery. During course of medicine, consumption of country liquor is strictly prohibited by <i>Ho</i> tribe. |
| <i>Ageratum conyzoides</i> L. (Asteraceae) Appa grass <i>Uchanti</i> (B/Ra) Fig. 5 | Fresh leaf extract is given with honey to cure dysentery. The medicine is given till the cure of the disease. |
| <i>Ailanthus excelsa</i> Roxb. (Simaroubaceae) <i>Kanjil</i> (Sant) | Fresh stem bark paste with black pepper seeds and honey is divided into two equal halves; one half is given in empty stomach, the residual part is again divided into two equal half and one part is given 6 hrs after the first dose and the last part is given after 3 hrs of the second dose to cure blood dysentery. |
| <i>Alangium salvifolium</i> (L.f.) Wangerin (Alangiaceae) Sage leaves Alangium <i>Ankora</i> (<i>Toto</i>) Fig. 6 | Dried root powder is taken with a glass of lukewarm water at early morning in empty stomach to cure dyspepsia. |
| <i>Allium cepa</i> L. (Liliaceae) Onion <i>Pianj</i> (B, Sant) | Fresh young bulb extract with a pinch of common salt at early morning in empty stomach is given to cure dysentery till cured. |
| <i>Aloe barbadensis</i> Mill. (Asphodelaceae) Aloe <i>Ghrita Kumari</i> (B, Po) Fig. 7 | Fresh extract of the middle portion of leaves mixed with sugar molasses is given in empty stomach with a glass of lukewarm water to cure constipation. |
| <i>Alpina calcarata</i> (Haw.) Rosc. (Zingiberaceae) Galangal <i>Boch</i> (B); <i>Banada</i> (Sant) | Decoction of rhizome is taken at early morning preferably in empty stomach to cure dyspepsia. |
| <i>Andrographis paniculata</i> (Burm. f.) Wall. ex Ness. (Acanthaceae) Creat <i>Kalmegh</i> (B); <i>Kalmegh</i> (Khe) Fig. 8 | Fresh leaf extract is given early morning with empty stomach to expel the intestinal worm. |
| <i>Annona squamosa</i> L. (Annonaceae) Custard apple <i>Ata</i> (B, Hj) | Leaf extract is used as vermifuge at early morning in empty stomach. |
| <i>Azadirachta indica</i> A. Juss (Meliaceae) Indian lilac <i>Neem</i> (B); <i>Nimbu</i> (Mu); <i>Nimdaru</i> (Sant) | Fresh leaf extract mixed with equal amount of honey is taken early morning to cure dyspepsia by <i>Munda</i> tribe. Fresh leaf extract mixed with a pinch of black pepper powder is given to the children as a vermifuge by <i>Santal</i> . |

Contd.

Table 1—Uses of plants in tabular form—*Contd.*

| Plant name/ family/ English name/ vernacular name | Uses |
|---|--|
| <i>Bauhinia tomentosa</i> L. (Caesalpiniaceae) | Decoction of fresh root is taken to cure amoebic dysentery. |
| <i>Rakta Kanchan</i> (B, Po) | |
| <i>Bischofia javanica</i> Bl. (Euphorbiaceae) | Fresh root paste with black pepper seeds is given in empty stomach for 3 successive days to cure dysentery. |
| <i>Kanjil</i> (B, Hj.) | |
| <i>Blumea lacera</i> (Burm. f.) DC. (Asteraceae) | Fresh leaf juice is given in empty stomach as vermifuge by <i>Polia</i> tribe. Fresh leaf extract is also given with lime water and a pinch of table salt to cure indigestion, flatulence by <i>Rabha</i> tribe. |
| <i>Shialmutra</i> (B, Po); <i>Kukursunga</i> (Ra) | |
| <i>Boerhavia repens</i> L. (Nyctaginaceae) | Dried seed powder mixed with honey is given with a glass of lukewarm water to cure flatulence. Whole plant paste with a glass of lukewarm water is taken at early morning in empty stomach to cure constipation. |
| Pig weed <i>Purnarnaba</i> (B, Mu) Fig. 9 | |
| <i>Bombax ceiba</i> L. (Bombacaceae) | Paste of petioles of leaves with honey and black peeper seeds is divided into 3 equal parts and each part is taken with a glass of cold water at regular interval of 8 hrs to cure diarrhoea. |
| Silk cotton tree <i>Shimul</i> (B); <i>Shemal</i> (Me) Fig. 10 | |
| <i>Butea monosperma</i> (Lam.) Taub. (Fabaceae) | Leaf decoction with a glass of water is given to children in empty stomach to expel intestinal worms by <i>Toto</i> tribe. Leaf extract mixed with lime water is given to cure indigestion and flatulence by <i>Santal</i> tribe. |
| Bengal kinotree <i>Palash</i> (B, Sant, <i>Toto</i>) Fig. 11 | |
| <i>Capparis zeylanica</i> L. (Capparidaceae) | Fresh root bark extract mixed with equal amount of water is given to cure dyspepsia. A few drops of honey can be mixed with the medicine for its taste. |
| <i>Kaureela</i> (Sant) | |
| <i>Cassia auriculata</i> L. (Caesalpiniaceae) | Fresh root bark made into paste with a pinch of common salt is given to cure constipation. |
| <i>Sona gach</i> (Or). | |
| <i>Centella asiatica</i> (L.) Urban (Apiaceae) | Plant extract is given to cure diarrhoea and dysentery by <i>Rajbangshi</i> and <i>Oraon</i> tribes. |
| Indian pennywort <i>Thankuni</i> (B); <i>Khudimaeni</i> (Or); <i>Dhola manamani</i> (Rj) Fig. 12 | |
| <i>Cissampelos pereira</i> L. var. <i>hirsuta</i> (Buch. – Ham. ex. DC.) Forman. (Menispermaceae) | Decoction of fresh root is given thrice a day for 3 successive days to cure diarrhoea by <i>Rajbangshi</i> tribe. Decoction of root is also given to reduce abdominal pain of children by <i>Santal</i> tribe. |
| <i>Nihal</i> (Rj); <i>Tejomala</i> (Sant) Fig. 13 | |
| <i>Cleome infortunatum</i> L. (Cleomaceae) | Seeds powder paste with sugar molasses is given at morning in empty stomach to expect the intestinal worms. |
| Wild Mustard <i>Hur-hure</i> (B, Sant) Fig. 26 | |
| <i>Clerodendrum inerme</i> (L.) Gaertn. (Verbenaceae) | Fresh root bark infusion is given with a pinch of table salt and sugar molasses to cure diarrhoea. |
| Wild mustard <i>Bhat</i> (B); <i>Bhatipatta</i> (Rj) Fig. 27 | |
| <i>Corchorus capsularis</i> L. (Tiliaceae) | Fresh leaf decoction is given to cure stomachache of children. Leaves extract with a little honey is given to cure dysentery. |
| Jute <i>Pat</i> (B, Ra) Fig. 28 | |
| <i>Corchorus olitorius</i> L. (Tiliaceae) | Seeds powder paste mixed with a teaspoonful of sugar-molasses is given to cure stomachache of children. |
| Tossa jute <i>Miltea pat</i> (B, Kh). Fig. 29 | |
| <i>Curcuma caesia</i> Roxb. (Zingiberaceae) | Fresh rhizome extract mixed with a few drops of honey is given to cure stomachache. |
| <i>Nilkanta</i> (B); <i>Kalahaldi</i> (Or.) Fig. 30 | |
| <i>Curcuma longa</i> L. (Zingiberaceae) | Fresh rhizome with sugar molasses is given in empty stomach to reduce the yellow coloration of the body during jaundice by <i>Santal</i> tribe. Aqueous extract of rhizome mixed with black peeper seed powder and honey is given to cure diarrhoea by <i>Oraon</i> tribe. |
| Turmeric <i>Halud</i> (B, Sant, Or) | |

Contd.

Table 1—Uses of plants in tabular form—*Contd.*

| Plant name/ family/ English name/ vernacular name Fig. | Uses |
|---|--|
| <i>Cyperus rotundus</i> L. (Cyperaceae) Nut grass <i>Mutha</i> (B, Khe). <i>Datura metel</i> L. (Solanaceae) Jimson weed <i>Dhutura</i> (B); <i>Dhatura</i> (Sant) Fig. 31 | Fresh tuber paste with honey is given to cure dysentery. |
| <i>Drosera burmannii</i> Vahl (Droseraceae) <i>Surya Sisir</i> (B); <i>Takagachi</i> (Po) Fig. 32 | Dried seed powder of 3-5 pinches, mixed with 7-9 drops of honey is given to cure stomachache. |
| <i>Drosera burmannii</i> Vahl (Droseraceae) <i>Surya Sisir</i> (B); <i>Takagachi</i> (Po) Fig. 34 | Whole plant paste is given to cure blood dysentery. |
| <i>Drimys indica</i> (Roxb.) Jessop. (Liliaceae) <i>Bonrasun</i> (Rj), <i>Bon Pianj</i> (Or) Fig. 33 | Fresh bulb extract is given to cure dysentery by <i>Rajbangshi</i> tribe. Bulb paste with a pinch of table salt and a little amount of sugar molasses is given to cure diarrhoea by <i>Oraon</i> tribe. |
| <i>Eclipta prostrata</i> (L.) L. (Asteraceae) <i>Kesut</i> (B); <i>Kesuria</i> (Ra) Fig. 35 | Whole plant extract mixed with a little limewater in given to cure stomachache. |
| <i>Euphorbia hirta</i> L. (Euphorbiaceae) Snake weed <i>Kervi</i> (B); <i>Khudimuni</i> (Or) Fig. 36 | Root paste mixed with honey is given to cure dysentery. |
| <i>Foeniculum vulgare</i> Mill. (Apiaceae) Fennel Mouri (B, Or) Fig. 37 | Fresh fruit decoction is taken to cure indigestion and flatulence. |
| <i>Fumaria indica</i> (Haussk.) Pugsley (Fumariaceae) <i>Bandhania</i> (Kh) <i>Glycosmis pentaphylla</i> (Retz.) DC. (Rutaceae) Tooth brush plant <i>Arsheora</i> (B); <i>Mutkila</i> (Rj) Fig. 14 | Aqueous extract of whole plant is taken to cure dysentery. |
| <i>Helicteres isora</i> L. (Sterculiaceae) East Indian screw tree <i>Mochra</i> (B, Sant) <i>Holarrhena pubescens</i> (Buch.- Ham.) Wall. ex G. Don. (Apocynaceae) Tellichery tree <i>Kurchi</i> (B); <i>Kutraj</i> (Rj) Fig. 15 | Fresh leaf extract is given at early morning in empty stomach to expel the intestinal worm. |
| <i>Kalanchoe pinnatum</i> Lam.) Pers. (Crassulaceae) American life plant <i>Pathar Kunchi</i> (B, Sant) <i>Limonia acidissima</i> L. (Rutaceae) Monkey food (E); <i>Kaitbel</i> (B, Or.) Fig. 16 | Ripe fruits are boiled in mustard oil; oil is cooled and gently rubbed on the lower abdomen of children to cure stomachache or abdominal pain. |
| <i>Litsea glutinosa</i> (Lour.) C.Robinson (Lauraceae) Tallow laurel <i>Cucurchita</i> (B); <i>Kaola</i> (Khe) <i>Melia sempervirens</i> (L.) All. (Meliaceae) Persian lilia <i>Mahaneem</i> (B); <i>Ghoraneem</i> (Po) | Fresh bark extract is given to cure diarrhoea and dysentery. |
| <i>Moringa oleifera</i> Lam. (Moringaceae) <i>Sajina</i> (B); <i>Sajna daru</i> (Sant) | Extract of the middle portion of leaf is given to cure amoebic dysentery. |
| | Fruit pericarp mixed with curd and honey is given to cure amoebic dysentery. |
| | Decoction of fresh stem bark mixed with a little sugar is given to cure dysentery. |
| | Fresh bark infusion is given at early morning in empty stomach as vermifuge. |
| | Seed powder is taken with a glass of lukewarm water to cure indigestion and flatulence. |

Contd.

Table 1—Uses of plants in tabular form

| Plant name/ family/ English name/ vernacular name Fig. 17 | Uses |
|--|--|
| <i>Murraya koenigii</i> (L.) Spreng. (Rutaceae) Curry leaf tree Kamini (B, Po) | Fresh leaf decoction is given with a pinch of common salt to cure flatulence. |
| <i>Nyctanthes arbor-tristis</i> L. (Nyctaginaceae) Night Jasmine Sheuli (B, Sant) | Fresh leaf extract is given as vermifuge. |
| <i>Ocimum tenuiflorum</i> L. (Lamiaceae) Sacred Basil Tulsi (B, Rj) Fig. 18 | Fresh leaf decoction is given at early morning in empty stomach to cure constipation. |
| <i>Phyllanthus fraternus</i> Webster (Euphorbiaceae) Bhui-amla (B, Or) Fig. 19 | Extract of whole plant is given at early morning in empty stomach to cure inflammation of liver. |
| <i>Plumbago indica</i> L. (Plumbaginaceae) Rose coloured lead wort Agnichita (B); Chita (Ra) | Stem bark decoction is given to cure dysentery. |
| <i>Ricinus communis</i> L. (Euphorbiaceae) Castor bean plant Reri (B, Toto) Fig. 21 | Seed oil is given to expel the intestinal worm of children. Seed oil is also used for the treatment of constipation. |
| <i>Saraca asoca</i> (Roxb.) Willd. (Caesalpiniaceae) Ashoka Asoke (B, Rj) | Fresh stem bark infusion is given to cure diarrhoea. It is advised not to consume alcoholic drinks and meat during the course of the medicine. |
| <i>Scoparia dulcis</i> L. (Scrophulariaceae) Sweet broom weed Sagar chini (B); Masla-gach (Kh). Fig. 22 | Fresh young twig paste with a few drops of honey is divided into 3 equal halves and is given to cure diarrhoea. |
| <i>Sphaeranthus indicus</i> L. (Asteraceae) Globe thistle Chhagal nudi (B); Murmuria (Rj) Fig. 23 | Fresh root extract mixed with a teaspoonful of lime water is taken to cure stomachache and flatulence. |
| <i>Streblus asper</i> Lour. (Moraceae) Sianese rough brush Sheora (B, Or) | Young leaf decoction is given to cure diarrhoea. |
| <i>Syzygium cumini</i> (L.) Skeels (Myrtaceae) Indian black berry Khudijam (B, Toto) | Dried seed powder is taken with half glass of water to cure flatulence. |
| <i>Tephrosia purpurea</i> (L.) Pers. (Fabaceae) Wild indigo Bon nil (B, Mud) Fig. 24 | Fresh root extract mixed with honey is given with a glass of lukewarm water to cure stomachache. |
| <i>Tinospora cordifolia</i> (Willd.) Miers (Menispermaceae) Gulancha (B); Guranch (Or) Fig. 25 | Fresh root extract is given to cure stomachache of children. |
| <i>Vernonia cinerea</i> (L.) Less (Asteraceae) Purple Fleabane Kuksim (B); Darya-arak (Sant) | Decoction of fruits is taken with a pinch of black pepper powder and common salt to cure dyspepsia. |
| <i>Woodfordia fruticosa</i> (L.) Kuntze (Lythraceae) Fire flame brush Dhai phul (B, Mu) | Flower paste with a few drops of honey is taken to cure dysentery. |
| <i>Zingiber officinale</i> Rosc. (Zingiberaceae) Ginger Ada (B, Khe) | Fresh rhizome pieces are chewed with a little table salt to cure dyspepsia. |

Abbreviations used: B-Bengali; E-English, Sant- Santali, Or- Oraon; Mu-Mundri; Ra-Rabha, Rj-Rajbangshi; Ho-Ho; Hj-Hajang; Khe-Kheria; Po-Polia/Polley.

Fig. 2 *A. precatorius* L.Fig. 3 *A. indicum* (L.) SweetFig. 4 *A. zeylanica* Med.Fig. 5 *A. conyzoides* L.Fig. 6 *A. salvifolium* WangerinFig. 7 *A. barbadensis* Mill.Fig. 8 *A. paniculata* Wall. ex Ness.Fig. 9 *B. repens* L.Fig. 10 *B. ceiba* L.Fig. 11 *B. monosperma* Taub.Fig. 12 *C. asiatica* (L.) UrbanFig. 13 *C. pereira* L. var. *hirsuta*Fig. 14 *G. pentaphylla* DC.Fig. 15 *H. pubescens* G. Don.Fig. 16 *L. acidissima* L.Fig. 17 *M. oleifera* Lam.Fig. 18 *O. tenuiflorum* L.Fig. 19 *P. fraternus* WebsterFig. 20 *P. indica* L.Fig. 21 *R. communis* L.Fig. 22 *S. dulcis* L.Fig. 23 *S. indicus* L.Fig. 24 *T. purpurea* (L.) Pers.Fig. 25 *T. cordifolia* Miers

Fig.26 *C. infortunatum* L.Fig.27 *C. inerme* (L.) Gaertn.Fig.28 *C. capsularis* L.Fig.29 *C. olitorius* L.Fig.30 *C. caesia* Roxb.Fig.31 *C. longa* L.Fig.32 *D. metel* L.Fig.33 *D. indica* JessopFig.34 *D. burmannii* VahlFig.35 *E. prostrata* (L.) L.Fig.36 *E. hirta* L.Fig.37 *F. vulgare* Mill.

Methodology

An attempt has been under taken to enumerate the wild plants used by the tribal populace of the area for the treatment of gastro-intestinal problems, which includes of diarrhoea, dysentery, dyspepsia, flatulence, indigestion, stomachache, and as vermifuge. During field trips, information regarding the plants usages, have been collected from different tribal communities and then information's are cross checked with the information provided by another informants of the same tribal community. Normally, the local tribal medicine men and women served as informants and in some cases aged persons of the village or persons, who possess a brief knowledge about the plants of their locality may be act as informants. During collection of information, local name of that plant in *Bengali* language or local tribal language were collected for relocation of plant in near future. A detailed process of preparation of medicine and the mode of administration were also noted. In the study, information was collected from the 11 different tribal communities of the area, namely *Hajang, Ho, Kheria, Munda, Mech, Oraon, Polia* or *Polley Rabha, Rajbanshi, Santal* and *Toto*. Of these

11 tribal communities, the *Polia/Polley* and the *Rajbanshi* do not belong to tribal groups in strict sense, but they have considerable knowledge about nature and plant lore.

Results and discussion

Plants are arranged family, English name, vernacular name and uses (Table 1). Gastro-intestinal problem is a very common problem in tribal societies. This gastrointestinal problem includes the ailments like constipation, diarrhoea, dysentery, dyspepsia, indigestion and flatulence, inflammation of liver, stomachache, abdominal pain and intestinal worm. Tribal people are very much prone to these ailments because of their unhygienic habitat, food habits, improper sanitation and inadequate availability of pure drinking water. During the study, it has been found that all the 11 tribal communities come under the study are very much prone to these ailments. These tribal people used 62 species of plants belonging to 60 genera under 36 families (33 Dicots and 3 Monocots). These 62 species of plants used in 75 different ways of prescriptions of which root, rhizome and root bark are used in 18 cases; stem,

stem bark, twigs and bulbs in 12 cases; leaves and petioles in 21 cases; flowers in 1 occasion; fruits in 6 cases; seeds in 7 cases and whole plants are used in 6 occasions. In most of the cases, leaves are used for the preparation of drug. Among the studied tribal groups, the *Santals* are very well acquainted with these problem since they have provided highest numbers of information (17) followed by *Oraon* tribe with 11 information. Of these 9 different types of gastrointestinal ailments, the diarrhoea and dysentery are two commonest ailments which have been documented by 11 and 21 prescriptions, respectively. From the process of drug preparation, honey is mixed as drug adulterant (*Anupan*) and the molasses and salt is mixed only for the betterment of the taste of medicine.

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