Ethnomedicinal value of traditional food plants used by the Zeliang tribe of Nagaland

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The Naga tribes of Nagaland have a unique tradition of selection and utilization of plant resources. Many food plants both from cultivation and wild are being used as ethnomedicinal plants by the herbal healer in Naga society. The Zeliang is one of the dominant tribe of Nagaland with rich indigenous knowledge systems and have minimum impact of present day modernization. The tribe has aged old unique food habits for their nutritional support and health cares. The present paper highlights the ethnomedicinal uses of 35 food plants belonging to 26 families used by the Zeliang tribe of Nagaland. These food plants include mostly the species used for vegetables, condiments and fruits.

Keywords: Nagaland, Zeliang tribe, Ethnomedicinal uses, Traditional food plants
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Ethnobotany has attracted much attention, for its academic, historical and many economic applications including the selection of medicinal plants1. Because of prime need man has always concerned with the problem of health and applying the knowledge to be sought the problems of illness2. Plants have a long history of medicinal usages for the cure of many diseases. The ethnomedicinal practices of tribal communities are followed by generations which are continuously inherited. The ancient Greeks and Romans valued plants for its various uses, as medicine being the most important and its medical practices provided the patterns for later western medicines3. The Ayurvedic and other Indian systems of medicine are well recognized throughout the world. Many wild and lesser known food plants are being used in the country for medicinal purpose by different tribes and these plants play a major role in meeting the nutritional and health care requirements. Ethn medicinal plants are the living resources, exhaustible if over used for food and medicinal purposes together4. In India, more than 300 wild plant species are used as subsidiary food/vegetables by tribal, and out of 800 plants, at least 250 plants can be developed as a new source of food in the near future5. The Northeast India is the home of a large numbers of tribal communities with rich culture and traditional knowledge systems. The selection and utilization of different plant species for healthcare is very diverse and unique among these communities. Some important contributions have been made on understanding the ethno medicinal plants and indigenous knowledge systems related to these species from various state of the region6-16. Many tribal communities in the northeast India are still unexplored with regard to their ethnobotanical knowledge. Dutta & Dutta17 in their review report indicated that about 1,350 species of plants are used in ethnomedicinal preparations, 665 species as food plants and 899 species as miscellaneous uses in northeast India. The state of Nagaland (25°6’-27°4’N and 93°20’-95°15’ E) with a geographical area of 16,527km² is a home of many Naga tribes. The state is inhabited by various ethnic communities of Kukies and Nagas [Anagami, Ao, Chakkeshang, Chang, Konyak, Lotha, Phom, Pochury, Sangtam, Sumi (Sema), Yimchunger, Zeliang, minor groups, etc.]. The Nagas believe that they are born of stones and some sects point to stones in certain caves near their villages as their original progenitors18. To explore the ethnobotanical or ethno medicinal plants of the state various contributions have been made

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time to time by various workers which have made significant contribution in understanding the ethnobotanical plants used by various Naga tribes\textsuperscript{19-22}. Although uses of a large number of medicinal plants by various tribes are reported in these studies, ethnomedicinal plants used by Zeliang are yet to be explored. The Zeliang is one of the major Naga tribal communities of the state that utilized various wild and cultivated food plants. Hence, a study has been undertaken on ethnomedicinal plants used by the Zeliang and as a part of the research work the present paper highlights the details of ethnomedicinal uses of food plants.

**Methodology**

Field trips were conducted in different localities of Peren district of Nagaland, the major inhabitation of Zeliang tribe during 2009-2012. Data and information were gathered by visiting selected household of Zeliang tribe through personal discussion and interviews with knowledgeable person particularly family elders and local medicine-men (Kobi-raj). For collection of data standard ethnobotanical questionnaire have been used following Rao\textsuperscript{23} and Martin\textsuperscript{24} with needful modification. The vernacular names (local names), trade names, parts used, availabilities, methods of utilization etc. were recorded with collection of voucher samples. Collection of plant specimens and preparation of herbarium are made as per the standard methods of Jain and Rao\textsuperscript{25}. Identification of specimens was made with the help of taxonomic literature and herbarium specimens at BSI, Shillong (ASSAM).

**Results and discussion**

The study revealed that the Zeliang tribe utilized numerous wild and cultivated plants for common food items (Figs 1-12). Among the various food plants used by the tribe, the information provided by the local medicine men indicated the ethno medicinal value of 35 species consumed regularly as food items. The recorded species belong to 26 different families of Angiosperms and comprises all the habit form, i. e. herbs, shrubs, climbers and trees. The most commonly used families with highest number of plant species are Asteraceae, Lamiaceae, Liliaceae and Zingiberaceae. Almost all the species are used in day to day life as food plants by the common people and the herbal practitioners use these species for their medicinal values and prescribed them for particular treatments. These species are used in the treatment of various common and important diseases like indigestion, dysentery, diarrhoea, morning sickness, tonsils, cough, cold, nausea, abnormal MC-cycle, kidney stones, hepatopathy, paralysis, mosquito repellent, tonic, etc. These food plants comprise the vegetables, spices and condiments and fruit plants where majority are used as vegetable. The vegetable plants includes Alocasia macrorrhiza, Cajanus cajan, Mentha arvensis, Oryzium sativum, Elsholtzia blanda, Oroxylum indicum, Zanthoxylum armatum, etc. While the spice and condiments are represented by Allium ascalonicum, Allium chinense, Elsholtzia blanda, Eryngium foetidum, Perilla frutescens, etc. All the species with their detail uses for food and medicine along with family, local names, voucher number and locality of collection and parts used are tabulated in Table 1.

The species listed in the present study are the common food plants of the region which are being consumed by the Zeliang tribe of Nagaland. The medicinal properties of these species are very rarely known by the common people in the region even they are being used for food purpose. When cross cultural analysis was made, it has been found that these species are also used as food plants by Angami, Lotha, Sema and other tribes which indicate that these species are important dietary components of Naga tribes. However, the medicinal uses along with the utilization pattern of some of the plant species like Cajanus cajan, Capsicum chinense, Elsholtzia blanda, Emilia sonchifolia, Hibiscus sabdariffa, Manihot esculenta, Mentha arvensis, Musa paradisiaca Parkia javanica, etc. are very rarely known and documented in the present study. The medicinal uses of species namely Allium chinense, Centella asiatica, Colocasia esculenta, Houttuynia cordata, Oroxylum indicum, Zanthoxylum armatum by different Naga tribes have also been reported by Changkija\textsuperscript{20}, Jamir\textsuperscript{21} and Deorani & Sharma\textsuperscript{22}. It is to be mentioned here that these species are also utilized as ethnomedicinal plants by other tribes of North east India. However, some additional medicinal values with detail mode of uses of each species have been added in the present work.

The use of Allium ascalonicum and Zanthoxylum armatum for paralysis, Alocasia macrorrhiza for snakebite, Ananas comosus for kidney stone and lungs purifier (for chain smokers), Bidens pilosa for kidney disease, Cajanus cajan for oral ulcer, tonsils and bed odour of mouth, Capsicum chinense for inducing appetite and heart disease, Clerodendrum cordatum for hypertension and malaria,
Ageratina adenophora for malaria, Hibiscus sabdariffa for purifying blood, Houttuynia cordata for being restricted from consumption by the pregnant women and to cure tonsils, Menth arvensis for regular enstruation cycle, Myrica esculenta for toothache, etc. are the interesting findings of the present study and form the first report of such medicinal uses with details of mode of utilization. It is interesting to note that these common food plants are used for the treatments of more than 30 diseases and majority of the species are used for more than one cases. Fourteen species namely Ageratina adenophora, Alpinia galangal, Ananas comosus, Cajanus cajan, Bidens pilosa, Carica papaya, Centella asiatica, Elsholtzia blanda,
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<tr>
<td>Ageratina adenophora (Spreng.) R. M. King &amp; H. Rob [Asteraceae]</td>
<td>Japan nei New Jalukie, PK 21 *Fig.6</td>
<td>Herb Lv</td>
<td>1. Leaves are used as vegetable. 2. The boiled decoction of 20 tender leaves (boiled ½ an hr) is taken for malaria (10ml twice in a day after food). The paste of leave is applied on the cuts and wounds.</td>
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<tr>
<td>Allium ascalonicum L. [Amaryllidaceae]</td>
<td>Gamara Benreu, PK 07</td>
<td>Herb Bl Lv</td>
<td>1. Bulbs and leaves are used as spices and vegetable. 2. About ¾ bulbs and whole bublets of 1 bulb of garlic are crushed together to make a paste and warmed with 5 ml of mustard oil and applied on the paralyzed portion 3 to 4 times a day for paralysis.</td>
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<tr>
<td>Allium chinense G. Don [Amaryllidaceae]</td>
<td>Kuba Ngwalwa, PK 11 *Fig.1</td>
<td>Herb Bl Rt</td>
<td>1. Bulbs and roots are used as condiments and vegetable. 2. Sticky local rice (1kg) is soaked with 2 L of water overnight. The sieved water of the soaked rice is mixed with the crushed paste of 2-3 bulbs of the species. 30/40ml of the mixture is taken early in the morning for fever and stomach problems.</td>
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<tr>
<td>Alocasia macrorrhizos (L.) G. Don. [Araceae]</td>
<td>Hebeu Benreu, PK 08</td>
<td>Herb Rz Lv</td>
<td>1. Rhizome and leave are used as ingredients in fish curry. 2. About 10ml of exuded liquid after cut from rhizome and leave is applied on the snake bite area with cow or buffalo’s milk immediately after the bite to remove the poison.</td>
</tr>
<tr>
<td>Alpinia galanga (L.) Wild. [Zingiberaceae]</td>
<td>Galangal vache Benreu, PK 40</td>
<td>Herb Rz</td>
<td>1. Fresh rhizome is fried with vegetable to make curry. 2. Chewing a thumb size rhizome after food is used for flatulence, lungs and joint pains. A mixture of its bean size fresh rhizome and same size ginger is pounded and mixed with 50ml water and 5ml honey and given two times a day after food to cure pile.</td>
</tr>
<tr>
<td>Ananas comosus (L.) Merr. [Bromeliaceae]</td>
<td>Poramchi Heningkunglwa, PK 13</td>
<td>Herb Fr</td>
<td>1. Fruits are eaten raw. 2. About 50ml juice of a fresh fully ripened fruit is mixed with 100gm of sugar and taken (10ml twice in a day) after food for a week to cure Jaundice. About 10 mature leaves are boiled in 1 L water together with 10gm molasses for ½ an hour and taken (20ml) twice daily to break kidney stone. Regular consumption of one of ten cut pieces of a ripe fruit after food is good for lungs and blood purification and discharging urine freely.</td>
</tr>
<tr>
<td>Artocarpus heterophyllous Lam. [Moraceae]</td>
<td>Jongchi Heningkunglwa, PK 42</td>
<td>Tree Fr</td>
<td>1. Tender fruits are eaten as vegetable and ripe fruits are also eaten. 2. About 300gm of tender fruits are cooked with 100gm of potato in ½ L water along with 10ml mustard oil and eaten 3/4 times as normal curry in a week is good for ulcer and bowel movement. The ripe fruits are eaten raw for laxative purpose.</td>
</tr>
<tr>
<td>Bidens pilosa L. [Asteraceae]</td>
<td>Tangnia Heningkunglwa, PK 35</td>
<td>Herb Lv Sh</td>
<td>1. Leaves, shoots are eaten as vegetable (boil or raw). 2. About 2/3 leaves and shoots are crushed into paste and mixed with 10ml cow’s urine and applied on the diseased skin. The leave and shoot of about 10 to 15 plants are made into paste and mixed with 1 L water and filtered. The extract is mixed with 10ml honey and taken twice (10ml each) a day for 2 weeks for leprosy and discharging enough urine.</td>
</tr>
<tr>
<td>Cajanus cajan (L.) Druce [Fabaceae]</td>
<td>Chiopi Mhainamtsi, PK 17</td>
<td>Shrub Pd Lv</td>
<td>1. Tender pods and seeds are eaten as vegetable. 2. About 20 leaves are boiled with ½ L of water for about 20 min. and gargled many times early in the morning and bed time for tonsil, oral ulcers and bed odour of mouth. 20ml of the boiled liquid is taken twice a day for jaundice. About 30/40 tender pods are boiled with 1 L buffalo milk and eaten with normal meal to induce lactation.</td>
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(Contd.)
Table 1—Ethnomedicinal uses of some food plants by Zeliang tribe of Nagaland—(Contd.)

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<tr>
<td>Capsicum chinense Jacq. [Solanaceae]</td>
<td>Jhaluki Ngwalwa, PK 53</td>
<td>Herb Fr</td>
<td>1. Berry fruits are eaten as hot inducing vegetable and spice.</td>
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<td></td>
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<td>2. By licking once or twice on the cut surface of fruit with a little salt is used to induce appetite. Regular eating of it cure asthma and any heart disease.</td>
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<tr>
<td>Carica papaya L. [Caricaceae]</td>
<td>Hepobomchi Benreu, PK 09</td>
<td>Shrub Fr, Sd, St, Lv</td>
<td>1. Ripe fruits are eaten raw and green fruits eaten as vegetable.</td>
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<td>2. Ripe fruits eaten raw after meal is good for digestion. About 100gm seeds after drying are crushed and mixed with 100ml water along with 5ml honey. The mixture (5ml) is taken once at bed time for vermifuse. The latex exuded from the cut ends of stem and green fruits are applied on the diseased skin and dog and insect bite area. Crushed paste of about 20 fresh leaves are used to wrap over the fracture part of bone.</td>
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<td>2. Whole plant is eaten raw with a little salt for indigestion. 10ml decoction of handful amount of the plant with ½ L water is taken twice in a day before meal for gastric. Fresh plant extract in water is mixed with honey in the ratio 10:10:1 and 10ml of it is taken in the morning as tonic.100gm of whole plant parts are crushed together with 20gm turmeric (all raw) and mixed with 50ml water. The mixture is filtered with a muslin cloth and 10ml of it is taken thrice daily for 2 days to cure loose motion.</td>
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<tr>
<td>Clerodendrum cordatum D. Don. [Lamiaceae]</td>
<td>Gaternei Heningkunglwa, PK 14</td>
<td>Shrub Lv</td>
<td>1. Leaves are eaten as vegetable.</td>
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<td>2. About 20 tender leaves are cooked with 2/3 potato tuber in 1 L of water and eaten once or twice in a week for hypertension. Its tender leaves and tapioca are boiled together in 5:1 ratio and its 20ml is taken twice a day after food a week to cure malaria.</td>
</tr>
<tr>
<td>Dioscorea alata L. [Dioscoreaceae]</td>
<td>Herei Ngwalwa, PK 04</td>
<td>Climb -er Tb</td>
<td>1. Tubers are eaten as vegetable.</td>
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<td>2. About 200gm tubers are cooked and eaten in place of rice for 1 month to cure Gonorrhoea, Diabetes and Piles.</td>
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<tr>
<td>Elsholtzia blanda (Benth.)Benth. [Lamiaceae]</td>
<td>Ninghui Heningkunglwa, PK 12</td>
<td>Herb Wp, Lv, In</td>
<td>1. Whole plant is eaten as spice and condiments.</td>
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<td>2. Gargling 5/6 times of boiled decoction of 50gm whole plant early in the morning and bed time is good for tonsils and mouth freshening. Overnight soaked of leaf and inflorescence with water or boiled decoction of the same (10ml 3-4 times a day) is taken for kidney stone. Fumigation of the dried plant is used as mosquito repellent.</td>
</tr>
<tr>
<td>Emilia sonchifolia (L.) DC. ex DC [Asteraceae]</td>
<td>Hirankhuri Mhainamtsi, PK 16</td>
<td>Herb Lv, In</td>
<td>1. Leaves are eaten as vegetable and salads.</td>
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<td>2. About 5/6 leaves and inflorescence are smashed into paste and applied on the bowel area. Fresh tender leaves and inflorescence are eaten raw for night blindness.</td>
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<td>2. About 5/6 fresh whole plant is made into paste and applied on the forehead and also massaged on the back for fever. The decoction of 10 plants with 1 L water is mixed with 10ml honey and10ml of its mixture is taken twice after food as diuretic.</td>
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| *Ficus carica* L. subsp. rupestris (Hausskn. ex Boiss.) Browicz [Moraceae] | *Hedutchi* New Jalukie, *PK 24* | Tree, Fr, Lx | 1. Fruits are eaten.  
2. Eating of 3/4 ripe fruits in a day after food is recommended for anaemia and tumors. Fresh green fruit (3/4) are taken raw with a little salt at bed time is good for dysentery and bronchitis. Latex is directly applied on the bite/sting sites of warts and insects. |
| *Hibiscus sabdariffa* L. [Malvaceae] | *Choing ginei* Mhainamtsi, *PK 18* | Shrub, Fr, Lv, Cx | 1. Ripe fruits and leaves are eaten as vegetable.  
2. Cool decoction of 100gm each of fruits and leaves boiled with ½ litre sieved water of rice soaked with water overnight is used as hair lotion. 200gm each of fruits and leaves are cooked with 100gm potato in ½ litre water for ⅓ an hr and eaten for stomach disorder. Boiled cooked of its fruits along with fleshy calyx and eaten at least once in a week is very good for blood purification. |
| *Houttuynia cordata* Thunb. [Saururaceae] | *Gatha/ Nsatnei* Benreu village, *PK 06* | Herb, Lv, St, Rt | 1. Leaves, stem and roots are eaten as spice and condiments.  
2. About 100gm each of leaves, stem and roots are eaten raw with salads and curry 2/3 times in a week for stomach ulcers, tonsils and muscular pains (pregnant women are not advisable to eat). |
| *Ipomoea batatas* (L.) Lam. [Convolvulaceae] | *Nki merei* Mhainamtsi, *PK 19* | Creep,er, Tb, Lv | 1. Tubers and tender leaves are eaten as vegetable.  
2. About 100gm cooked tubers are eaten once or twice in a week for constipation. 5/10 tender leaves are boiled cooked and eaten 2/3 times in a week for diabetes. |
2. Regular eating of 100gm of mature and dry fruits seed kernel for a week is good for curing neurological problems. The decoction of 200gm each of crushed leaves and barks soaked with 1/2 L water overnight is used to take bath for herpes. |
| *Manihot esculenta* Crantz [Euphorbiaceae] | *Nriubangrei* Jalukie, *PK 32* | Shrub, Lx, Rt | 1. Leave and roots are eaten as vegetable.  
2. Leaves are boiled together with tender leave of *Gaternei* in 1:5 ratio in 1litre water for ½ an hour and 20ml of it is taken twice a day after food to cure malaria. |
| *Mentha arvensis* L. [Lamiaceae] | *Parimkenambe hei* Peren, *PK 30* | Herb, Lv, St | 1. Leaves and tender stems are eaten as spice and condiments.  
2. Fresh juice of 5/6 shoots is given with a pinch of salt with 5ml honey for stomach problems, intestinal worms and diarrhoea. 10/15 fresh leaves crushed into paste and mixed with 5ml honey and taken as one dose for a week ahead of the cycle. |
| *Musa paradisiaca* L. [Musaceae] | *Hegumci* Mhainamtsi, *PK 20* | Herb, Fr, St, In | 1. Fruits are eaten raw; stem and tender inflorescence are eaten as vegetable.  
2. About ½ kg tender stem after removing sheathing leaf-bases is eaten as vegetable 2/3 times in a week for acidity. Tender inflorescence is cooked and eaten for stomachic, diabetes and dysentery. 1 ripe fruit is eaten after meal for good digestion. Fresh root is crushed into paste and boiled with roots of *Mimosa pudica* and water (in 2:1:5 ratio) and taken (20ml once a day at bed time) to discharge urine. |
| *Myrica esculenta* Buch.-Ham. ex D. Don [Myricaceae] | *Nrimchi* Peren, *PK 29* | Tree, Fr, Br | 1. Fruits are eaten.  
2. About 5/10 fruits are eaten raw ¾ times in a week for digestion, asthma and bronchitis. 5gm bark is chewed everyday for toothache. A lotion is prepared from the bark to wash putrid sores. |
Ficus carica, Musa paradisiaca, Houttuynia cordata, Myrica esculenta, Oroxylum indicum and Perilla frutescens have been found used for at least 5 cases clearly indicate their recognition as high value medicinal plants by the Zeliang tribe. Among these, except the Bidens pilosa, Elsholtzia blanda, and Perilla frutescens all other species are found as common Indian ethno medicinal plants justifying the

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| Oroxylum indicum (L.) Benth. ex Kurz [Bignoniaceae] | Shakbang Peren, PK 26 | Tree Pd, Br, Lv | 1. Tender pods are eaten as vegetable.  
2. About 1kg of fresh bark is boiled in 5 L of water for 30/40 minutes. 5ml of the decoction alone or with honey (to neutralize the bitter taste) is given twice a day for dysentery, diarrhoea and rheumatism. The paste of leave is applied externally for enlargement of spleen. |
| Parkia javanica Merr. [Leguminosae] | Nkampi Jalukie, PK 34 *Fig.12 | Tree Pd, Sd, Br | 1. Green pods and dry black seeds are taken as vegetable.  
2. Peeled pods curry with a little chilly is eaten for piles. The decoction of 500gm barks or the peeled thin green membrane in 1 L warm water is taken (10ml) twice a day before food for dysentery and diarrhoea. |
| Passiflora edulis Sims [Passifloraceae] | Bellchi Jalukie, PK 31 | Creep-er Fr, Lv | 1. Ripe fruits and tender leaves are eaten as vegetable.  
2. About 2/3 ripe fruits are cut opened and seed perisperm is taken with water for dysentery. Tender leaves are cooked and eaten for diabetes and hypertension. |
| Perilla frutescens (L.) Britton [Lamiaceae] | Mipeo Jalukie, PK 43 *Fig.10 | Herb St, Lv, Sd | 1. Stems, leaves and seeds are taken as spice and condiments.  
2. Inhaling the crushed scent of leave, stem and seeds or drinking of 5-6 ml of leave, stem and seeds decoction twice a day before meal is good for morning sickness and nausea. 10ml of juice of fresh leave stem and seeds mixed with honey is taken at bed time a day ahead of the MC-cycle. |
| Rhus chinensis Mill. [Anacardiaceae] | Homei Jalukie, PK 36 | Tree Fr, Sd, St | 1. Fruits, seeds and galls are taken as drinks and eaten raw.  
2. About 500gm of fruits with galls is soaked overnight in 1 L of water with1gm of black salt. 10ml of it is taken twice a day after food for indigestion and gastritis. |
| Rumex nepalensis Spreng. [Polygonaceae] | Nbetnagi nei Peren, PK 28 | Herb Lv | 1. Leaves are eaten as vegetable.  
2. About 10/15 leaves are crushed with ½ L sugarcane juice to make a paste. The mixture is diluted with ½ L water and taken once in the morning for one week for hepatitis. Fresh leave juice mixed with pure honey is directly applied on the head and kept for at least 6/7 hrs to overcome hair loss. |
| Zanthoxylum armatum DC. [Rutaceae] | Namreiginei New Jalukie, PK 45 | Tree St, Lv | 1. Tender stem and leaves are eaten as vegetable.  
2. Decoction of 2/3 bunch tender stems with leaves mixed with 1-2 spoon sugar candy in ½ litre water (boiled ½ an hr) is taken once a day in the morning for hepatopathy and paralysis. Instead of sugar candy 1 spoon of black salt is mixed with the above decoction and taken after meal for digestion. |
| Zingiber officinale Roscoe [Zingiberaceae] | Hebei Jalukie, PK 41 | Herb Rz | 1. Rhizome is taken as spice and condiment to flavor curry.  
2. Extract of 100gm fresh rhizome mixed with 5ml honey in 20ml water is given twice after food in a day to relief cough and to cure pile. |


*indicate the colour plate number
undertake the study. Godfrey for their support. The first author is thankful to Mr. Kedingaulung, Mr. Aliang Ringdi, Fr Kobi-raj practitioners, local elders, etc. for their help and cooperation during the field study. We are particularly thankful to Mr. Kedingaulung, Mr. Aliang Ringdi, Fr Godfrey for their support. The first author is thankful to the Principle and the Head of Botany department of Patkai Christian College, Dimapur for their support to undertake the study.

Conclusion

The result of the present study indicates that the food plants used by the Zeliang have important curative properties. The effective management and uses of these species not only meet the demand of nutritional requirements but also meet the healthcare problems. The detailed phytochemical investigation of the selected species for medicinal properties may lead to the discovery of many novel secondary metabolites useful for formulation of drugs. The rich traditional knowledge of Zeliang tribe should be documented and preserved for better utilization of the plant resources.

Acknowledgement

Authors gratefully acknowledge the local herbal practitioners (Kobi-raj), village chairman, vegetable vendors, local elders, etc. for their help and cooperation during the field study. We are particularly thankful to Mr. Kedingaulung, Mr. Aliang Ringdi, Fr Godfrey for their support. The first author is thankful to the Principle and the Head of Botany department of Patkai Christian College, Dimapur for their support to undertake the study.

References

8. Gogoi P & Boissyia CL, Information about a few herbal medicines used by people of Assam (India) against jaundice, Himal Div, 2 (1984) 41-44.