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Medicinal Plants used by Koch Rajbangshi of North Salmara Subdivision, Bongaigaon, Assam, India

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Abstract

A total of 73 medicinal plants belonging to 44 families of angiosperms were found to be used in the healing practice of 36 types of diseases including diabetics, heart problem, and neurological disorders by Koch Rajbangshi people of North Salmara sub-division of Bongaigaon district, Assam. More use of leaf was found in disease treatment than other parts of plant. Among the plants species 49 were common in occurrence, 19 species less common and 5 species *viz*., *Aristolochia indica* L., *Asparagus recemosus* Willd., *Cissus quadrangularis* L., *Garcinia morella* (Gaertn.) Desv and *Rauvolfia serpentina* Benth. were in rare category in the study area.

Key words: Koch Rajbangshi, Medicinal plant, Ethnomedicine, Ancient tribe, Assam

Introduction

In recent years, study of ethnobotany has been given much attention due to its wide application in community health care. In India and other parts of Asia many works have been done aimed at documenting knowledge of traditional medicinal plants. Indian medical heritage is perhaps the longest unbroken one in human civilization. The record of medicinal use of plants are found in various repositories like *Rigveda*, *Atharvaveda*, *Ayurveda*, *Charaka Samhita* and *Susruta Samhita* etc., besides *Unani* and *Siddha*.

North East India inhabiting more than 150 tribes speaking as many languages is a region of melting pot of variegated cultural mosaic of people and races, and ethnic tapestry of many hues and shades (Dutta and Dutta, 2005).

Koch Rajbangshi or Rajbangshi is one of the most ancient tribe of Assam. They belong to the Mongoloid race and are very closely allied to Kacharies and Garos (Gait, 1906; Barua *et al.*, 1999). Koches group of people belong to Kachari and other tribes which converted themselves to Hinduism; while Rajbangshi literally means the 'Royal community'. The term Koch and Rajbangshi are both synonymous and indicate the tribe which once dominated North Bengal, Goalpara and North side of Brahmaputra River (Gait, 1906). They use to speak their own dialect (Barua *et al.*, 1999) called Rajbangshi language; it is a mixture of

Assamese, Bangla and Hindi. In Rajbangshi language, the use of Sanskrit is highest with a mixture of Urdu, Hindi, Prakit and Pali (Choudhury, 1969). The original Koch Rajbangshi language is now practically extinct, but the trace of it is found in the present form of language (Gait, 1906). They have their rich cultural heritage. They exhibit their culture by observing *Bisuwa* during month of April. They perform ritual believes like '*Bansh Puja'* which means the worship of bamboo; *Garja puja*, worship of village deity; *Maroi Puja* which means worship of *Maa Manasha* (Goddess of Snake). They are distributed all over Assam and North Bengal, eastern part of Bihar, Meghalaya, Eastern Nepal and in some parts of Bangladesh. They are the most dominant tribe in Bongaigaon District of Assam which is the part of old *Bijni Raj Estate* (Choudhury, 1969).

The Koch Rajbangshi people use various wild and cultivated plants as medicine for curing different diseases. They completely or partially depend upon these plants for curing various diseases. The plants are mostly used as first aid treatment in most of the diseases. In almost every village there is a medical man who generally knows the traditional uses of the plants. There are some ritual believes also associated with these medicinal plants. A good number of these plants are also included in their daily diet. Above all, the plants have also some market value, thus playing an important socio-economic role among the people of the tribe. With the use of modern health care system, the traditional health care system is now at a verge of extinction. Previously, Barua *et al.* (1999) worked on the ethnobotany of Rajbanshis of Assam and recorded the use of 58 plant species belonging to 37 families; they found most of the plants used as antidote, bodyache, diarrhoea and sexual ailment of human (Barua *et al.* 1999). In the present work, we tried to document the plants used for the medicinal purposes in the North Salmara region. We document all the plants along with its uses with an aim to create a database of traditional knowledge and use pattern of plants by Koch Rajbangshi people in the region.

Study Area

The study was conducted during 2009 to 2010 in Choutaki, Deohati and Kakoijana villages of North-Salmara subdivision of Bongaigaon district (Fig. 1). The villages are dominated by Koch Rajbangshi people. The district is located in the western part of Assam (26°15'-26°30'N and 90°28'-90°50'E), India. The soils of the study area are light gray to light brown in colour and are less compact type consisting of ground sand, silts and clays. The soil of the District is generally acidic (www.bongaigaon.nic.in) The study area falls in subtropical climate zone. Humid summer with heavy rain fall in the monsoon and moderately cold winter are the characteristics of the area. The maximum mean temperature is 30 to 32°C in the month of July while the minimum is recorded in the month of January (12°C). The average rainfall in monsoon range between 900 to 1100 mm and in winter it is 0 to 20 mm (Regional Meteorological Centre, Guwahati).

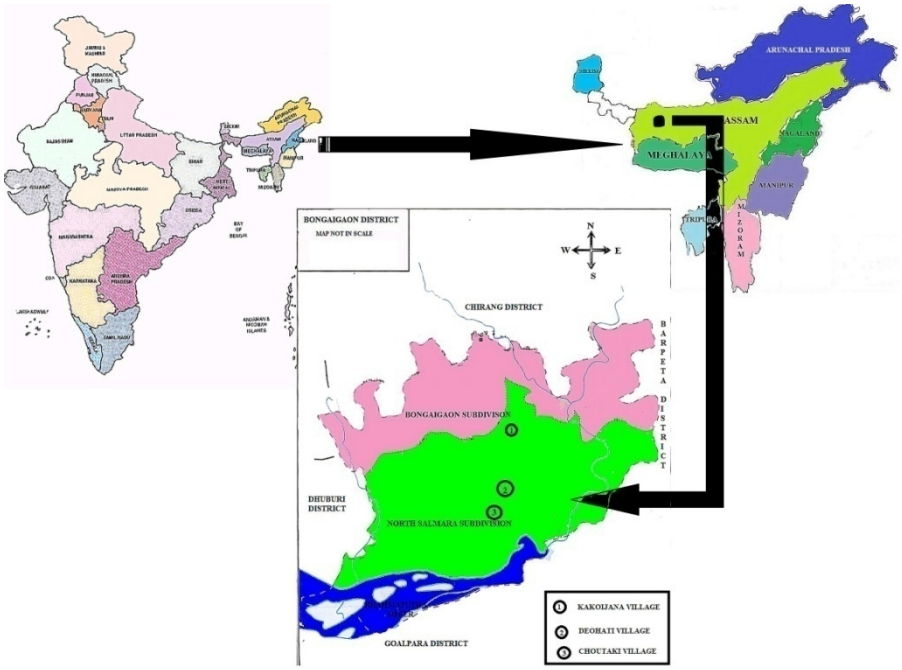

Figure 1. Map of the North Salmara sub-division of Bongaigaon District, Assam.

Materials and methods

In our study, snowball sampling procedure was adopted to squeeze out the knowledge in a short time. Snowball sampling begins with the few respondents who are known and available in the study area. Subsequently, these respondents give other names who meet the criteria of research, who in turn give more new names (Ahuja, 2011). Open ended interview method was followed and semi structured questionnaires were used to collect the data. Open ended interviews are essentially casual conversations which can reveal detailed life histories (Cotton, 1996).

Traditional medicinal practitioners were mainly enquired and information was collected regarding the habitat, type, parts used of the plant. Data on each plant had been recorded with their family, vernacular name, occurrence and process of utilization. The availability of the plant species were also recorded as common, less common and rare.

For making herbarium, specimens were pressed by spraying 10% formaldehyde. Succulent, bulbous and rhizomatous plants were boiled till the plant turned yellow and pressed properly. Dried specimens were poisoned properly with a saturated solution of $HgCl_2$ dissolved in absolute alcohol and mounted with good quality glue on standard herbarium sheet (42×28 cm^2). Field data with collection number, locality, short description, vernacular name, collector's name were transferred from the field notebook to printed label on the right hand corner of the herbarium sheet for ready identification (Jain and Rao, 1977). The collected plants were identified by

consulting a number of books on the floras of the region especially Flora of British India (Hooker, 1872-1897), Flora of Assam (Kanjilal *et al.,* 1934-1940), and A Hand Book of Scientific Names and Assamese Names of Plants (Bora, 2004). The Herbarium of Botanical Survey of India, Shillong and Herbarium of Gauhati University were also used for identification of plant species. All the herbarium specimens are deposited in the herbaria of Abhayapuri College, Abhayapuri.

Results and discussion

In our present work, a total of 73 plant species belonging to 44 families (Tab. 1) which are used by the Koch Rajbangshi people in various diseases in their day to day life were recorded. Among them 46 plants are wild and 25 are cultivated, while 3 plant species occur both in natural and cultivated condition. However, there is a significant difference in the use of medicinal plants occurring in nature ($\chi 2$ = 5.8, df = 1, $P < 0.05$). Among them 65 plants are terrestrial, 5 epiphytic and 3 aquatic. Most of the plants are herbs in habit (Fig. 2). Use of leaf is dominant which is followed by fruit, stem and root and other plant parts (Fig. 3). There is highly significant difference among the use of the plant parts ($\chi 2$= 104.9, df= 9, $P < 0.01$). Most of the plants are common in occurrence along with five rare plants viz. *Aristolochia indica* L, *Asparagus recemosus* Eilld., *Cissus quadrangularis* L., *Rauvolfia serpentina* Benth, *Garcinia morella* (Gaertn.) Desv. These plants are mainly used to cure 36 types of disease (Fig. 4).

The knowledge on wonderful and effective medicines by tribal communities acquired through the experience, are usually passed on by oral traditions as a guarded secret of certain families (Dutta and Dutta, 2005). As the modern civilization has now spread to the most regions of the world, it has made most of the primate societies to break away their cultural and traditional belief and practices. This slow divorcement from culture and tradition has brought about a disintegration of knowledge and practices of plants in their daily life (Das *et al.*, 2008.). The Koch Rajbangshi people are also not separate from the list. A study carried out in Rajasthan shows that 25% of therapeutic drugs are obtained from plants (Kumar *et al.*, 2003). There are many unknown plants which are still to be studied and observed (Saikia *et al.*, 2010). Hitherto, there is no such record of work done in the Koch Rajbangshi community. Hence, it is important to find out the traditional base of the healthcare system practiced by the Koch Rajbanshi community from the conservation point of view. The tribal people collect some of the important plant species from their surroundings and use according to their own traditional lore (Saikia *et al.*, 2010). Most of the plant species used by local people for medicinal purposes are herbs, which have vast economic importance (Das *et al.*, 2006). In our present work, it is found that the Koch Rajbangshi people use wild plants more than the cultivated ones. They have a similar type of use pattern of herbaceous plants like other records. Koch Rajbanshi people use plant types like tree (15 species) and climber (7 species) for medicinal purpose (Fig. 2).

A study carried out on the ethno medicinal use of wild plants in North Bengal plain found 62 plant species used in

Table 1. Medicinal plants used by Koch Rajbangshi people of North Salmara subdivision of Bongaigaon District, Assam.

Family	Scientific name (Voucher number)	Local name	Parts used	Disorders
Acanthaceae	1. *Andrographis paniculata* (Burn. f.) Wall.ex Nees (1025)	Chirota tita	Leaf extract	Common Fever
	2. *Justicia adhatoda* L.(1026)	Baska	Leaf extract	Cough
Amaranthaceae	3. *Achyranthus aspera* L.(1027)	Ultisoth	Root paste	Diarrhoea
	4. *Amaranthus spinosus* L(1028)	Kata khuduna	Root extract	Debility
	5. *Amaranthus tricolour* L.(1029)	Tejamoyee	Leaf extract	Bleeding
	6. *Deeringia amaranthoides* (Lamk.) Merr.(1030)	Matoktoka	Tendered stem	Jaundice
Anacardiaceae	7. *Spondias pinnata* (L.f.) Kurz.(1031)	Amara	Fruit juice	Stomach disorder
Apiaceae	8. *Centella asiatica* (L.) Urban(1032)	Manimuni	Leaf extract	Dysentery
	9. *Hydrocotyle sibthorpioides* Lamk. (1033)	Soto manimuni	Leaf extract	Gastric
Apocynaceae	10. *Rauvolfia serpentina* Benth. (1034)	Sorpogondha	Root extract	Insect bite
	11. *Catharanthus roseus* (L.) G. Don(1035)	Nittyo phul	Leaf extract	Diabetes
Araceae	12. *Alocasia indica* Schott(1036)	Mankosu	Heated stem	Joint pain
	13. *Colocasia esculenta* (L.) Schott(1037)	Kalakosu	Stem juice	Piles
	14. *Homalomena aeromatica* Scott. (1038)	Monghamaree kochu	Stem extract	Body pain
Arecaceae	15. *Calamus* sp. (1039)	Bet	Stem extract	Worm
Aristolochiaceae	16. *Aristolochia indica* L(1040)	Nilkontho	Stem extract	Tonsillitis
Asclepiadaceae	17. *Calotropis gigantea* (L.) W.T.Aiton(1041)	Aakon	Leaf extract	Body pain
Asteraceae	18. *Chromolaena odorata* (L.) Voigt(1042)	Barabhuri	Leaf extract	Bleeding
	19. *Eclipta alba* Hassk(1043)	Kaharaji	Leaf extract	Skin disease
	20. *Enhydra fluctuans* Lour. (1044)	Helonchi	Leaf extract	Headache
	21. *Tagetes petula* L. (1045)	Genda	Leaf extract	Bleeding
Bigoniaceae	22. *Oroxylum indicum* (L.) Vent. (1046)	Dingdinga	Tendered stem	Debility, jaundice
Caesalpiniaceae	23. *Cassia alata* L. (1047)	Daduati	Leaf extract	Skin disease
	24. *Tamarindus indica* L. (1048)	Tatelee	Fruit extract	Cold, cough
Cannabaceae	25. *Cannabis sativa* L. (1049)	Bhang	Leaf extract	Hydrophobia
Cluciaceae	26. *Garcinia morella* (Gaertn.) Desv. (1050)	Kuji thekera	Fruit extract	Dysentery
Combretaceae	27. *Terminalia arjuna* (DC) W. & A. (1051)	Arjun	Bark extract	High blood pressure,
	28. *Terminalia bellirica* (Gaertn.) Roxb. (1052)	Bauree	Fruit extract	Constipation
	29. *Terminalia chebula* Retz. (1053)	Hilikha	Fruit extract	Constipation
Crassulaceae	30. *Kalanchoe pinnata* (Lam.) Pers. (1054)	Pategaja	Leaf extract	Fever of minor
Cucurbitaceae	31. *Momordica sp.* (1055)	Tatoka Tita	Fried/ roasted fruit	Worm
Cuscutaceae	32. *Cuscuta reflexa* Roxb. (1056)	Ravoner nari	Stem extract	Wound
Cyperaceae	33. *Cyperus rotundus* L. (1057)	Kewabon	Root extract	Fever
Euphorbiaceae	34. *Phyllanthus emblica* L. (1058)	Gunial	Fruit extract	Stomach disorder
	35. *Ricinus communis* L. (1059)	Enda	Extract of seed, leaf, latex	dysentery, constipation, wound

Contd....

Geraniaceae	36. *Averrhoa carambola* L. (1060)	Kordoi	Roasted Fruit	Cold, cough
Lemiaceae	37. *Hyptis suaveolens* Poit. (1061)	Tokoma	Seed with water	Stomach disorder
	38. *Leucas plukentii* (Roth) Spreng(1062)	Kansia	Leaf extract	Nasal problem
	39. *Mentha arvensis* L. (1063)	Poduna	Leaf extract	Abdominal gripes
	40. *Ocimum basilicum* L. (1064)	Ramtulsi	Leaf extract	Cough
Liliaceae	41. *Allium sativum* L. (1065)	Rasun	Bulb juice	Fevers, body pain
	42. *Asparagus recemosus* Willd. (1066)	Sedlau	Root extract	Sexual debility
Malvaceae	43. *Gossypium herbacium* L. (1067)	Kapash	Root extract	Menstruation problem
	44. *Sida cordifolia* L. (1068)	Bola	Root extract	Debility
	45. *Hibiscus rosa- sinensis* L. (1069)	Joba	Flower juice	Hair falling
Meliaceae	46. *Azadirachta indica* A. Juss(1070)	Nim	Leaf extract	Skin disease
Mimosaceae	47. *Mimosa pudica* L. (1071)	Lajjya maloti	Root	Escaping snake bite
Moringaceae	48. *Moringa oleifera* Lamk. (1072)	Chajina	Leaf extract	Blood pressure
Moraceae	49. *Ficus benghalensis* L. (1073)	Bot	Bud	Scabies and boils
Musaceae	50. *Musa balbisiana* Colla. (1074)	Vim Kolo	Inflorescence	Loose motion
Nyctaginaceae	51. *Boerhavia diffusa* L. (1075)	Ponounoa	Leaf extract	Alimentary problem
Oleaceae	52. *Nyctanthus arbor-tristis* L. (1076)	Sewali phul	Leaf, Flower	Waist pain, fever
Oxalidaceae	53. *Oxalis corniculata* L. (1077)	Amserengi	Leaf extract	Dysentery
Papilionaceae	54. *Clitoria ternatea* L. (1078)	Aporajita	Root extract	Insanity
	55. *Sesbania grandiflora* Pers. (1079)	Bok ful	Leaf extract	Nose bleeding
	56. *Sesbania sesban* (L.) Merr. (1080)	Jayanti	Leaf extract	fever
Poaceae	57. *Cynodon dactylon* (L.) Pers(1081)	Durba	leaf extract	Vomiting, bleeding
Piperaceae	58. *Peperomia pellucida* (L.) H.B.K. (1082)	Neothani	Leaf extract	Fever
	59. *Piper longum* L. (1083)	Pipoli	Fruit extract	Cough, bodyache
Punicaceae	60. *Punica granatum* L. (1084)	Dalim	Flower	Nose bleeding
Rubiaceae	61. *Paederia scandens* (Lour.)Merr. (1085)	Padurileowa	Leaf extract	Stomach problem
Rutaceae	62. *Aegle marmelos* Correa(1086)	Bel	Leaf, fruit	Diarrhoea, dysentery
	63. *Citrus grandis*(L.) Osback. (1087)	Jombhura	Fruit juice	Constipation
	64. *Murrya koenzii* (L.)Spreng(1088)	Narasingha	Leaf extract	Stomach problem
Scrophulariaceae	65. *Bacopa monnieri* (L.) Pennell(1089)	Balmis tita	Leaf, Stem	Memory
Solanaceae	66. *Solanum surattense* Burm.f. (1090)	Bilkuli tita	Fruit juice	Alimentary problem
Tiliaceae	67. *Corchorus capsularis* L. (1091)	Pata	Leaf extract	Stomach problem
	68. *Grewia multiflora* Juss. (1092)	Kukursita	Bark	Bone fracture
Verbenaceae	69. *Pygmaeopremna herbacea* (Roxb.) Moldenke(1093)	Matifesua	Leaf extract	Jaundice
	70. *Vitex negundo* L. (1094)	Posuati	Heated leaf	Joint pain
Vitaceae	71. *Cissus quadrangularis* L. (1095)	Harajoroa lewa	Stem juice	Bone fracture
Zingiberaceae	72. *Curcuma domestica* Valet(1096)	Haldhi	Rhizome Extract	Stomach, skin problem
	73. *Zingiber officinale* Rosc. (1097)	Aada	Rhizome extract	Cold, cough

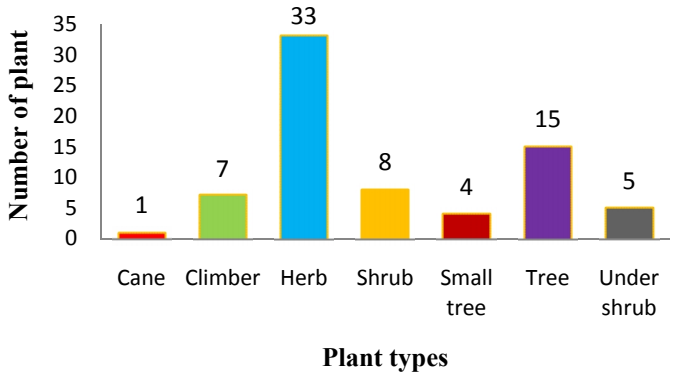

Figure 2. Totat number of plant types used as medicine by the Koch Rajbangshis in the North Salmara subdivision of Bongaigaon District, Assam.

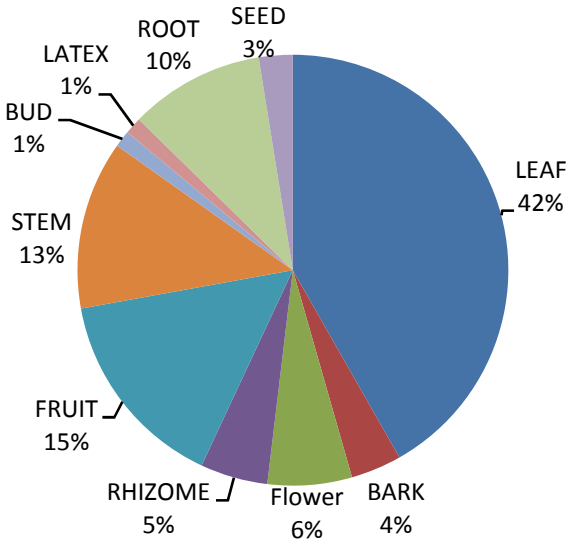

Figure 3. Percentage of the plant parts used for different medicinal purpose by the Koch Rajbangshis of North Salmara subdivision, Bongaigaon, Asssam.

75 different ways of prescriptions of which root and rhizome and root barks are used in 18 cases, stem, stem bark, twigs and petioles in 21 cases, flowers in 1 case, fruits in 6 cases; seeds in 7 cases and the whole plants in 6 cases (Mitra and Mukherjee, 2010). Another study in Jaintia of North Cachar hills describes that leaf is used in the majority of cases (23 species), followed by fruits (4 species). Different underground plant forms such as root, tuber, rhizome, bulb and pseudo-bulb have also been found to be in use as a source for curing ailments (Sajem and Gosai, 2006). It has been found

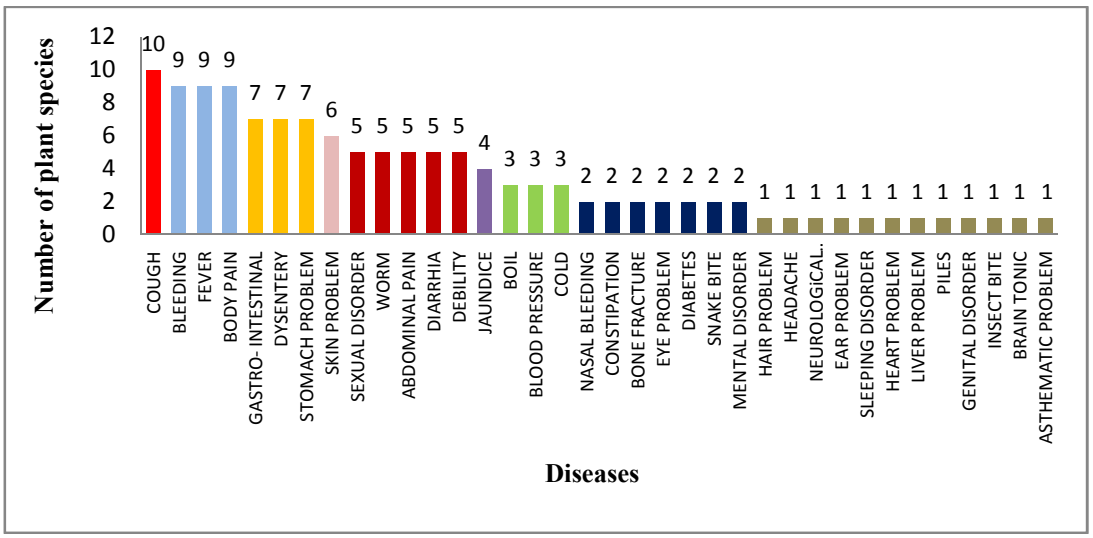

Figure 4. Different diseases cured by traditional healthcare system among the Koch Rajbangshis of North Salmara subdivision, Bongaigaon, Assam.

that the use of aboveground plant parts is higher (65.38%) than the underground plant parts (15.38%) (Dutta Choudhury *et al.*, 2010). Koch Rajbangshi people use leaf part significantly in higher proportion in comparison to other parts including fruit, flower, root, bark, bud, rhizome, latex, and seed. It was found that only 8 types of underground part (10% of the total) were used for medicinal purpose (Fig. 3).

In the earlier work, Barua *et al.* (1999) recorded 58 plant species used by the Rajbanshis of Assam. In the present work, 15 more plant species were recorded than the previous report. The present study shows the Koch Rajbangshi people use 73 plant species to cure 36 types of ailments, mostly in the treatment of cough (10 species), followed by fever (9 species), bleeding (9 species), body pain (9 species), gastrointestinal (7 species), dysentery (7 species), stomach problem (7 species), diabetic (2 species), heart problem (1 species). The use of the plants in curing the ailments differs significantly. Sajem *et al.* (2006) also found 39 medicinal plant species used in curing about 30 types of ailments in Jayantias of North Cachar hills, of which the highest numbers of plant species (20 species) were used for the treatment of gastrointestinal disorders such as indigestion and constipation. About 8 medicinal plant species were used in curing cough and cold, and 5 medicinal plant species were used for healing cuts and wounds (Sajem and Gosai, 2006). Sajem *et al*. (2008) found 6 species of plants which are included in the Red Data Book of Indian Plants (Sajem *et al.*, 2008). In our study we have recorded five species of rare plants which are used for medicinal purpose by the Koch Rajbanshi people.

Thus it can be concluded that the Koch Rajbangshi people have deep knowledge on the use of plants (both wild and cultivated) in treatment of various ailments like other

ethnic groups of Assam as well as North East India.

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