



## Study on magico-religious plants in Mising tribe of Assam, India

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Received 05 August 2019; revised 18 June 2020

Plants are traditionally utilized in various magico-religious beliefs of the Mising tribe in Assam, India. The present study attempted to document the utilization of plants in magico-religious practices, their valuation and prioritization based on importance and conservation priority and to assess the plant knowledge based on age and gender. It was studied from December 2014 to December 2017 through questionnaire survey and informal interviews. The data were collected from 80 informants belonging to 15 villages of three selected districts of Assam, India i.e. Dhemaji, Lakhimpur and Sonitpur. Overall, 63 plant species belonging 56 genera and 31 families were used in magico-religious practices. Poaceae was the dominant family and leaves were the dominant among plant parts. Sacred and religious rites (SAR), taboo (TAB) and magical belief system (MAG) were three major use categories. Of these, SAR was the dominant use category with 47 spp. SAR use category had the highest  $F_{ic}$  value with 0.977 followed by MAG and TAB. No significant difference in plant knowledge was observed among three age groups i.e., young (<40 years), adults ( $\geq 40$  to < 60 years) and old ( $\geq 60$  years). The women had significantly higher plant knowledge than men in two use categories (MAG and TAB) and also in over all categories. The valuation of magico-religious plants was done based on cultural importance index wherein *Brassica juncea* had the highest CI index i.e., 1.401 followed by *Mangifera indica*, *Areca catechu* etc. *Areca catechu* and *Gossypium arboreum* were ranked 1<sup>st</sup> in MIS and SCP respectively.

The present study is not intended to endorse the utilization of the magico-religious plants in a manner reported above; however, the study may lead to further detailed scientific investigation of the species.

**Keywords:** Assam, Cultural Importance Index, Magico-religious practice, Most Important Species, Plants

**IPC Code:** Int Cl.<sup>21</sup>: A61K 36/00, A61K 36/185, A61K 36/31, A61K 39/00, A01H 6/20

Plants are important natural resources and provide both material cultural needs such as shelter, cloth, food, tools etc. and magico-religious needs. Magico-religious practices are an integral part of the socio-cultural and religious aspect of a community which eventually passes vertically from one generation to another and passes horizontally from one community to another. Magico-religious belief system is defined as “a system of good or evil faith and worship of supernatural beings and explaining everything in this universe as an act of supernatural beings. Propitiation or appeasement of supernatural being is considered essential for the betterment of an individual or society<sup>1</sup>.”

The magico-religious practices have been followed worldwide by many traditional societies since time immemorial. Till now, about 411 plants were used for worshipping deities, luck charms and magical diseases

practiced among Afro-Surinamese<sup>2</sup>. The fumes generated with plants were utilized for controlling the insect pest, curing of diseases, preservation of food and also for conducting magico-religious practices<sup>3</sup>. The practice of tree veneration through tying of rags on the tree was done in Israel<sup>4</sup> and designating trees as sacred with 24 known reasons was practiced by Druze, Arab and Bedouin communities of Israel<sup>5</sup>. There were various plants used in symbolism and totemism by aboriginal tribe of Australia<sup>6</sup>. *Psidium guajava* was used for purification and preservation of corpse body by Torajanese community of Indonesia and *Cocos nucifera*, *Musa paradisiaca* and *Citrus hystrix* were also used in funeral ceremony as an important magico-religious practices<sup>7</sup>. *Datura meteloides* and *D. inoxia* were used in many religious ceremonies in Southwest part of America<sup>8</sup>. Many plants with hallucinogenic property were used during magico-religious practice in various cultures that changed the state of consciousness while performing

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magico-religious practices such as *Psilocybe mexicana*, *Lophophora williamsii*, *Datura innoxia*, *Cannabis sativa* etc.<sup>9</sup>

In India, 468 plants with 133 families and 340 genera are documented as sacred and magico-religious plants<sup>10</sup>. In magico-religious practices, many plants species were utilized such as *Aegle marmelos*, *Cannabis sativa*, *Cynodon dactylon*, *Datura stramonium* etc. in various religious activities and trees were worshipped in different part of India such as *Azadirachta indica*, *Ficus religiosa*, *Ficus benghalensis*, *Ocimum sanctum* etc.<sup>11,12</sup>. Plants were also believed to be associated with Gods and Goddesses such as *Musa balbisiana* with Lord Vishnu and Brihaspati, *Aegle marmelos* with Lord Shiva, *Hibiscus rosa-sinensis* (Goddess *Durga* or *Kali*) etc.<sup>13,14</sup>. There were various plant parts used in religious ceremonies for offering such as leaves of *Aegle marmelos*, *Cynodon dactylon*, *Cannabis sativa* etc., flowers of *Datura metel* and fruits of *Aegle marmelos* etc.<sup>15</sup>.

In India, there are about 700 tribes with a population of 104.2 million that constitute about 8.6% of the entire population<sup>16,17</sup>. Of these, the *Mising* tribe is one of the largest tribes of Assam with a population of 6,80,424<sup>17</sup>. They are an agrarian society and follow unique magico-religious practices since many generations for their wellbeing<sup>18</sup>.

Though few studies have been done on religious practices of this tribe<sup>18</sup>; however, complete documentation of magico-religious practices is

lacking. The present study was undertaken (a) to document the plants used in magico-religious practices and their valuation through cultural importance index (b) to assess the intra-cultural variation of plant knowledge based on age and gender and (c) to prioritize species based on their importance and conservation through preference ranking.

In this study, two null hypotheses are tested:

- (i) There is no significance difference in plant knowledge among three age classes.
- (ii) There is no significant difference in plant knowledge between men and women.

## Material and Methods

### Study site and the community

The *Mising* or *Miri* tribe is one of the largest tribes of Assam and it inhabits 11 districts of Assam viz., Biswanath, Charaidew, Dhemaji, Dibrugarh, Golaghat, Jorhat, Lakhimpur, Majuli, Sonitpur, Sibsagar and Tinsukia. They are the descendents of *Abotani* and worship *Donyi* (Sun) and *Polo* (Moon) since time immemorial and also follow animistic rituals<sup>18</sup>. *Ali aye ligang*, *Porag*, *Bohag bihu*, *Kati bihu*, and *Magh bihu* are the important festivals and are celebrated throughout the year. The study was conducted in Dhemaji, Lakhimpur and Sonitpur districts of Assam, India (Fig. 1 and Table 1) based on dominance of *Mising* tribe.

In total, 15 villages were selected from three districts of Assam i.e., *Alimurballigaon*, *Baligaon*,

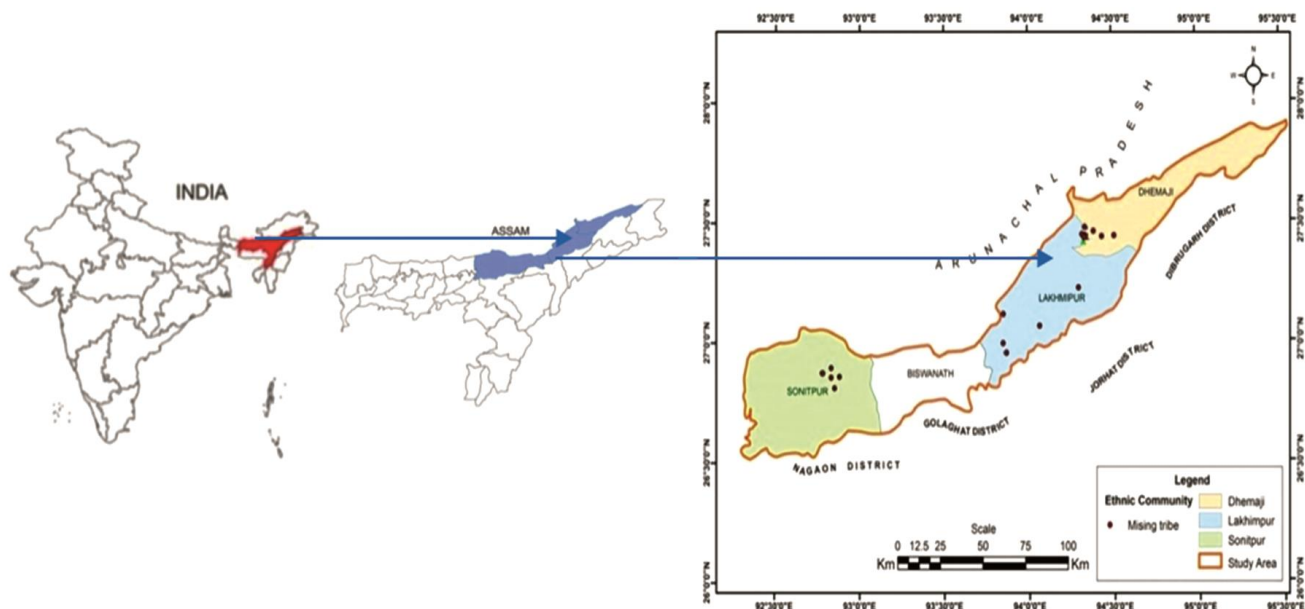


Fig. 1 — Map of study site.

*Dharikatigaon, Gorpara, Harmoti, Jiadhal, Jyotishpur, Kochutolikoligaon, Moinaporaogaon, Kaligaon (Ukhomati), Pallengaon, Rihajulimiriogaon, Salmora, Sunaimirigaon and Tameramirigaon.*

#### Ethnobotanical data collection

The documentation of magico-religious practices was done with prior information consent (PIC) from the informants. The field data was collected from December 2014 to December 2017 based on random sampling. Questionnaire was developed prior to conducting the survey and during the questionnaire survey, the personal data like name, age, sex and education were collected<sup>19</sup>. The herbarium was prepared and plants were identified through taxonomist and consulting literatures<sup>20,21</sup>. The nomenclature of plant species was verified by consulting websites namely, [www.theplantlist.org](http://www.theplantlist.org) and <http://www.ipni.org/>. A total of 80 informants from 15 villages were selected for the present study (Table 2).

The valuation of magico-religious plants was evaluated through cultural importance (CI) index<sup>22</sup> which was based on plant knowledge of informants ( $\geq 18$  years) on three use categories of magico-religious practices i.e., sacred and religious rite (SAR-plants used in religious and cultural ceremonies), taboos (TAB-plants not raised in the front yard of house due to inauspiciousness) and magical belief system (MAG-magical cure of diseases etc.).

$$\text{Cultural Importance Index (CI)} = \sum_{u=u_1}^{\text{unc}} \text{UR}_{ui}/N$$

Where, N is the number of informants and UR is the total number of use reports.

Table 1 — Longitude and latitude of selected districts of Assam

Districts	Longitude	Latitude
Dhemaji	94°12' E & 95°41' E	27°05' N & 27° 57' N
Lakhimpur	93°42' E & 94°20' E	27°53' N & 27°53' N
Sonitpur	92°16' E & 93°43' E	26°30' N & 27°01' N

Table 2 — Distribution of informants based on different age classes and gender

Variable	Categories	Sample size
Gender	Men	55
	Women	25
Age	Young people <40	36
	Adults ( $\geq 40$ to < 60 years)	27
	Old ( $\geq 60$ years)	17

Informant consensus factor ( $F_{ic}$ )<sup>23</sup> was determined by the following formula:

$$F_{ic} = (N_{ur} - N_t) / (N_{ur} - 1)$$

$N_{ur}$  = Number of use reports from informants for a particular plant use category.

$N_t$  = Number of taxa or species used for that plant use category for all informants.

The intra-cultural variation of plant knowledge was studied with a questionnaire survey wherein the mean number of plants cited in each three use categories (SAR, TAB & MAG) were calculated with respect to gender (men and women) and age [Young people (<40 years), Adults ( $\geq 40$  to < 60 years) and Old ( $\geq 60$  years)]<sup>24</sup>.

The most important species (MIS) and species for conservation priorities (SCP) were evaluated through preference ranking method<sup>25,26</sup>. Both 5 species of MIS and SCP were evaluated based on the perception of informants. The abundance of species was determined with four scale values i.e., absent (0), rare (1), less (2), moderate (3) and common (4).

#### Data analysis

The intracultural variation of plant knowledge based on age and gender was done by comparing the mean number of plants cited in each of the use categories by using Mann-Whitney  $U$  Test with PAST software to evaluate the significant differences of plant knowledge among three age groups [Young people (<40 years), Adults ( $\geq 40$  to < 60 years) and Old ( $\geq 60$  years)] and gender groups (men and women). The ranking of MIS and SCP was done based on the mean value of plant species cited according to its importance. For calculating abundance of the species mean value of the score was compared. Significant difference was considered at  $p < 0.05$  and  $p < 0.01$  level. Spearman rank correlation was calculated to determine the relationship existing among mean rank of MIS, SCP and mean abundance.

## Results and Discussion

### Documentation of plants used in magico-religious practices

A total of 63 plant species belonging to 56 genera and 31 families documented for magico-religious practices in *Mising* tribe were shown in Table 3 and some of the important plants were given in Fig. 2. The number of plant species reported was higher than other studies because the present study was a

Table 3 — Documentation of plants used in magico-religious practices of Mising tribe

Plant name and voucher no.	Vernacular name	Family	Plant parts	Source	Use category	Magico-religious practices
<i>Mangifera indica</i> L.; GP-59	Keidi asing	Anacardiaceae	L, WP	W; H	SAR, TAB	To decorate the door with the leaves during marriage ceremony. Not planted near house premises and considered as taboo.
<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.; GP-88	Kothnaiphul	Apocynaceae	FR	H	SAR	Flowers of <i>Tabernaemontana divaricata</i> are offered to deity during <i>Aie matri hokam</i> .
<i>Acorus calamus</i> L.; GP-02	Talapi	Acoraceae	R	H	MAG	To protect the children against unforeseen forces and cure common cold.
<i>Allium sativum</i> L.; GP-04	Talap	Amaryllidaceae	B	FL; H	MAG	To prepare amulets for the protection of kids against unforeseen forces and cure common cold.
<i>Alocasia macrorrhizos</i> (L.) G. Don.; GP-05	Beyeng	Araceae	WP	H	MAG	The plant is raised at backyard of granary to protect against unforeseen forces.
<i>Colocasia esculenta</i> (L.) Schott. GP-28	Ngerak	Araceae	WP	F, FL, H, W	SAR	To offer to Goddess Lakshmi during first transplantation of paddy.
<i>Areca catechu</i> L.; GP-08	Sali	Arecaceae	FT	H	SAR	To offer during <i>Kumsung uie</i> (a ritual done at granary for their prosperity) and other major festivals.
<i>Calamus tenuis</i> Roxb.; GP-18	Tayo	Arecaceae	S	F; H	SAR	Fruit is offered to deity during <i>Talleng uie</i> (a ritual done every year that related to protection against thunder volt, etc.).
<i>Cocos nucifera</i> L.; GP-27	Narikol	Arecaceae	FT	H	SAR	To offer during a religious ceremony called <i>Naam kirton</i> (a ritual done for the welfare of family members).
<i>Brassica juncea</i> (L.) Czern., GP-17	Petu	Brassicaceae	SD	FL; H	SAR, MAG	Seed oil-To light lamp as a ritual in all ceremonies. To prepare sacred water for purification purpose during final rituals and to drag away bad spirits.
<i>Sinapis alba</i> L.; GP-84	Tubung petu	Brassicaceae	SD	H; FL	MAG	To protect the house and people against unforeseen forces.
<i>Carica papaya</i> L.; GP-21	Aomita	Caricaceae	FT	H	SAR	To light lamps during a festival called <i>Kati bihu</i> (a festival celebrated during October to November) wherein Goddess Lakshmi is worshipped for better crop production.
<i>Garcinia pedunculata</i> Roxb. Ex Buch.-Ham; GP-49	Thakera	Clusiaceae	FT	H	SAR	Fruits of <i>Garcinia pedunculata</i> , <i>Momordica charantia</i> and <i>Lagenaria siceraria</i> , rhizome of <i>Curcuma caesia</i> and branches of <i>Flemingia strobilifera</i> and <i>Litsea salicifolia</i> are used during ceremonial bath of cow during <i>Goru bihu</i> .
<i>Terminalia arjuna</i> (Roxb. ex DC.) Wright & Arn.; GP-91	Arjun	Combretaceae	WP	H	MAG	To protect the house and people against unforeseen forces.
<i>Eupatorium cannabinum</i> L.; GP-41	Tomloti	Compositae	L	H; F	SAR	Leaves of <i>Eupatorium cannabinum</i> , <i>Ficus hispida</i> , <i>Sarcochlamys pulcherrima</i> and <i>Zanthoxylum oxyphyllum</i> , rhizome of <i>Zingiber officinale</i> are offered during <i>Talleng uie</i> .
<i>Cucurbita maxima</i> Duchesne; GP-30	Tapa	Cucurbitaceae	L	FL; H	SAR	Leaves are offered along with other plant parts of <i>Cucurbita maxima</i> , <i>Solanum anguivi</i> and <i>Calamus tenuis</i> during <i>Saglet</i> (a ritual done after few days of <i>Talleng uie</i> ).
<i>Momordica charantia</i> L.; GP-63	Kerala	Cucurbitaceae	FT	FL; H	SAR	Fruits of <i>Momordica charantia</i> , <i>Garcinia pedunculata</i> and <i>Lagenaria siceraria</i> , rhizome of <i>Curcuma caesia</i> and branches of <i>Flemingia strobilifera</i> and <i>Litsea salicifolia</i> are used during ceremonial bath of cow during <i>Goru bihu</i> .

(Contd.)

Table 3 — Documentation of plants used in magico-religious practices of Mising tribe (Contd.)

Plant name and voucher no.	Vernacular name	Family	Plant parts	Source	Use category	Magico-religious practices
<i>Lagenaria siceraria</i> (Molina) Standl.; GP-55	Lao	Cucurbitaceae	FT	H; FL	SAR	Fruits of <i>Lagenaria siceraria</i> , <i>Garcinia pedunculata</i> and <i>Momordica charantia</i> , branches of <i>Flemingia strobilifera</i> and <i>Litsea salicifolia</i> and rhizome of <i>Curcuma caesia</i> are used during ceremonial bath of cow during <i>Goru bihu</i> .
<i>Dillenia indica</i> L.; GP-35	Sompa	Dilleniaceae	FT, WP	F; FL; W; H	SAR, TAB	Fruits- to light the lamps in the farmland during <i>Kati bihu</i> (a festival celebrated during October to November). Not planted near house premises and considered as taboo.
<i>Elaeocarpus floribundus</i> Blume.; GP-38	Jalpai	Elaeocarpaceae	WP	H	TAB	It is not planted near house premises and considered as taboo.
<i>Acacia farnesiana</i> (L.) Willd.; GP-01	Tarua kadam	Fabaceae	WP	H	MAG	To protect the house and people against unforeseen forces.
<i>Cicer arietinum</i> L.; GP-23	But mah	Fabaceae	SD	H	SAR	Seed is offered for worshiping Goddess <i>Lakshmi</i> .
<i>Erythrina stricta</i> Roxb.; GP-40	Tagat	Fabaceae	WP	H; F; W	TAB	It is not planted near house premises and considered as taboo.
<i>Flemingia strobilifera</i> (L.) W.T. Aiton; GP-48	Makhiloti	Fabaceae	BH	H; F; W	SAR	Branches of <i>Flemingia strobilifera</i> and <i>Litsea salicifolia</i> , rhizome of <i>Curcuma caesia</i> and fruits of <i>Garcinia pedunculata</i> , <i>Momordica charantia</i> and <i>Lagenaria siceraria</i> are used during ceremonial bath of cow during <i>Goru bihu</i> .
<i>Tamarindus indica</i> L.; GP-89	Tetuli	Fabaceae	WP	H	TAB	Not planted near house premises and considered as taboo.
<i>Vigna radiate</i> (L.) R.Wilczek; GP-95	Mogu mh	Fabaceae	SD	M	SAR	To offer during <i>Naam Kirtan</i> . (a ritual done every year for the welfare of the family).
<i>Clerodendrum glandulosum</i> Lindl.; GP-26	Pakkong	Lamiaceae	L	H	SAR	To offer to deity during <i>Talleng uie</i> .
<i>Ocimum tenuiflorum</i> L.; GP-69	Krishna tulsi	Lamiaceae	L	H	SAR	To prepare sacred or holy water for purification purpose in final rite.
<i>Litsea salicifolia</i> (J. Roxb. ex Nees) Hook. f.; GP-57	Diglotti	Lauraceae	BH	W; F; H	SAR	Branches of <i>Litsea salicifolia</i> and <i>Flemingia strobilifera</i> , rhizome of <i>Curcuma caesia</i> and fruits of <i>Garcinia pedunculata</i> , <i>Momordica charantia</i> and <i>Lagenaria siceraria</i> are used during ceremonial bath of cow during <i>Goru bihu</i> .
<i>Lagerstroemia speciosa</i> (L.) Pers.; GP-56	Ajar	Lythraceae	WP	W; H	TAB	Not planted near house premises and considered as taboo.
<i>Bombax ceiba</i> L.; GP-16	Singi asing	Malvaceae	WP	F; W; H	TAB	It is not planted near house premises and considered as taboo.
<i>Corchorus capsularis</i> L.; GP-29	Mora pat	Malvaceae	BK	FL; H	SAR	To prepare ropes and used for tying the livestock during <i>Goru bihu</i> .
<i>Gossypium arboreum</i> L.; GP-51	Sepak	Malvaceae	FS	H	SAR	-To lighting lamps with flosses and used in ceremonial altar for conducting religious ceremony to symbolize clouds in <i>Dobur uie</i> and <i>Ali aye ligang</i> (a major festival of Mising tribe)
<i>Hibiscus rosa-sinensis</i> L.; GP-53	Joba	Malvaceae	FR	H	SAR	Flowers of <i>Hibiscus rosa-sinensis</i> are offered to deity during <i>Aie matri hokam</i> .
<i>Phrynium pubinerve</i> Blume; GP-73	Kamro akkam	Marantaceae	L	H; F	SAR	To use as offering plates and to prepare ceremonial altars in religious ceremonies during <i>Talleng uie</i> .
<i>Ficus religiosa</i> L.; GP-46	Ahot	Moraceae	WP	W; F	TAB	It is not planted near house premises and considered as taboo.

(Contd.)

Table 3 — Documentation of plants used in magico-religious practices of Mising tribe (Contd.)

Plant name and voucher no.	Vernacular name	Family	Plant parts	Source	Use category	Magico-religious practices
<i>Ficus racemosa</i> L.; GP-45	Tajik	Moraceae	BK, BH, L	H; F; W	SAR	To offer bark and leaf of the plant to deity by some section of the tribe during <i>Talleng uie</i> . Branch is used in <i>Pega mennam</i> ritual (a ritual done when unnatural death occurs in a family).
<i>Ficus hispida</i> L.f; GP-44	Takuk	Moraceae	L	H; F; W	SAR	Leaves of <i>Ficus hispida</i> , <i>Sarcochlamys pulcherrima</i> , <i>Eupatorium cannabinum</i> and <i>Zanthoxylum oxyphyllum</i> , rhizome of <i>Zingiber officinale</i> are offered during <i>Talleng uie</i> .
<i>Musa balbisiana</i> Colla; GP-65	Athiang kopak	Musaceae	L, S	H	SAR	-To use leaves as offering plates and a good substitute of <i>Phrynium pubinerve</i> leaf. -To prepare ceremonial altar with the stem during <i>Talleng uie</i> (ritual).
<i>Musa</i> × <i>paradisiaca</i> L.; GP-66	Pagro kopak	Musaceae	FT, L	H	SAR	Fruit is offered to deity during <i>Talleng uie</i> (ritual). Leaves- in religious ceremonies and considered as a good substitute of <i>Phrynium pubinerve</i> .
<i>Papaver somniferum</i> L.; GP-71	Kani	Papaveraceae	FT	O	SAR	<i>Kani</i> (latex obtain from fruit of <i>Papaver somniferum</i> ) is offered to deity during <i>Aie matri hokam</i> (a ritual done for the welfare of the family and whole village).
<i>Piper betle</i> L.; GP-74	Pan	Piperaceae	L	H	SAR	To offer along with fruits of <i>Areca catechu</i> in all ceremonies.
<i>Arundo donax</i> L.; GP-10	Nal	Poaceae	S	F; W; H;	SAR	To prepare ceremonial altar during <i>Talleng uie</i> (a ritual done each year that related to protection against thunder volt, etc.).
<i>Bambusa tulda</i> Roxb.; GP-14	Jati dibang	Poaceae	S	H	SAR	<i>Bambusa tulda</i> is used for carrying dead body during final rites.
<i>Cynodon dactylon</i> (L.) Pers.; GP-33	Dhubur	Poaceae	L	F; W; H	SAR	To prepare sacred or holy water for purification purpose in final rite ritual.
<i>Heteropogon contortus</i> (L.) P. Beauv. ex Roem. & Schult.; GP-52	Tasey	Poaceae	L	W; H	SAR	To construct a traditional house ( <i>Chang ghar</i> ) during celebration of <i>Ali aye ligang</i> festival.
<i>Oryza sativa</i> L.; GP-70	Aam	Poaceae	G, SW, SD	FL	SAR	The rice flour is offered to deity in religious ceremonies like <i>Talleng uie</i> , <i>Pejab uie</i> (a ritual done for curing severe pain). During celebration of <i>Ali aye ligang</i> (a major festival celebrated in February) wherein grains are sown as a ritual called <i>Aampidgog</i> . Straw is burned for generating smoke in ritual of <i>Pega mennam</i> .
<i>Phragmites karka</i> (Retz.) Trin.exSteud.; GP-72	Piro	Poaceae	L	H; F; W	SAR	To prepare ceremonial altar for performing rituals such as <i>Ali aye ligang</i> , <i>Dobur</i> (a ritual done at village level every year for their welfare and prosperity) and <i>Pega mennam</i> .
<i>Saccharum officinarum</i> L.; GP-	Tabat	Poaceae	S	H	SAR	To offer in religious ceremony such as <i>Naam Kirtan</i> and <i>Lashmi puja</i> (religious ceremony).
<i>Saccharum ravennae</i> (L.) L.; GP-78	Ikora	Poaceae	L	F; W	SAR	A good substitute of <i>Phragmites karka</i> during religious ceremony.
<i>Ziziphus jujuba</i> Mill.; GP-99	Boguri	Rhamnaceae	WP, BH	H; F; W	TAB, MAG	Not planted near house premises and considered as taboo. Branch - to protect the house and people.
<i>Citrus limon</i> (L.) Osbeck; GP-24	Nemu tenga	Rutaceae	WP	H	TAB	It is not planted near house premises and considered as taboo.
<i>Citrus megaloxycarpa</i> Lush.; GP-25	Robab	Rutaceae	WP	H	TAB	It is not planted near house premises and considered as taboo.
<i>Murraya koenigii</i> (L.) Spreng.; GP-64	Narasingha	Rutaceae	WP	H	MAG	To protect the house and people against unforeseen forces.

(Contd.)

Table 3 — Documentation of plants used in magico-religious practices of Mising tribe (Contd.)

Plant name and voucher no.	Vernacular name	Family	Plant parts	Source	Use category	Magico-religious practices
<i>Zanthoxylum oxyphyllum</i> Edgew.; GP-97	Onger	Rutaceae	L	H; F; W	SAR	Leaves of <i>Zanthoxylum oxyphyllum</i> , <i>Sarcochlamys pulcherrima</i> , <i>Eupatorium cannabinum</i> , and <i>Ficus hispida</i> rhizome of <i>Zingiber officinale</i> are offered during <i>Talleng uie</i> .
<i>Capsicum annuum</i> L.; GP-20	Mirchi	Solanaceae	FT	FL; H	MAG	The dried fruits are burned to protect against unforeseen force.
<i>Solanum anguivi</i> Lam.; GP-86	Banko	Solanaceae	FT, L	H	SAR	Leaf of <i>Solanum anguivi</i> are utilized during ceremonial bath of cow during <i>Goru Bihu</i> .
<i>Solanum melongena</i> L.; GP-85	Bayomb	Solanaceae	L	H	SAR	Leaf of <i>Solanum anguivi</i> is utilized during ceremonial bath of cow during <i>Goru Bihu</i> and also during <i>Saglet</i> (ritual).
<i>Thelypteris angustifolia</i> (Willd.) Proctor; GP-93	Ruktak	Thelypteridaceae	L	W; H	SAR	To prepare ceremonial altar during <i>Gohoruwa dobur</i> ritual (a ritual done at household level especially during rare occasion like accidental death, quarrel etc.).
<i>Sarcochlamys pulcherrima</i> Gaudich.; GP-81	Notke, Ombe	Urticaceae	L	H; F; W	SAR	Leaves of <i>Sarcochlamys pulcherrima</i> , <i>Eupatorium cannabinum</i> , <i>Ficus hispida</i> , and <i>Zanthoxylum oxyphyllum</i> , rhizome of <i>Zingiber officinale</i> are offered during <i>Talleng uie</i> .
<i>Alpinia nigra</i> (Gaertn.) Burt.; GP-06	Taleng akkam	Zingiberaceae	S	F; H	SAR	To prepare the ropes for tying the livestock during <i>Goru bihu</i> festival wherein ceremonial bath is done (a festival celebrated on 2 <sup>nd</sup> week of April called <i>Bohag Bihu</i> ). To offer its tender stem to the deity during ritual like <i>Talleng uie</i> (a ritual done each year that related to protection against thunder volt, etc.).
<i>Curcuma caesia</i> Roxb.; GP-31	Kalahaladi	Zingiberaceae	R	FL; H	SAR	Rhizome of <i>Curcuma caesia</i> , fruits of <i>Garcinia pedunculata</i> , <i>Momordica charantia</i> and <i>Lagenaria siceraria</i> , branches of <i>Flemingia strobilifera</i> and <i>Litsea salicifolia</i> are used during ceremonial bath of cow during <i>Goru bihu</i> .
<i>Zingiber officinale</i> Roscoe; GP-98	Takey	Zingiberaceae	R	H; FL	SAR	Rhizome of <i>Zingiber officinale</i> is also offered to deities during <i>Kumsung uie</i> (a ritual done every year in the granary for better prosperity of the family).

Plant parts: B-Bulb, BK-Bark, BH-Branch, FT-Fruit, FR-Flower, FS-Flosses, G-Grain, L-Leaf, R-Rhizome, S-Stem, SD-Seed, SW-Straw, WP-Whole Plant; Source: F-Forest; FL-Farmland; H-Home garden; M-Market; O-Other source; W-Wasteland; Use categories: SAR-sacred and religious rite, TAB-taboo, MAG-magical belief system

comprehensive report on magico-religious practices of Mising tribe<sup>27</sup>. Poaceae was the dominant family with 8 plants species and utilized in various magico-religious practices like preparation of ceremonial altar, performing ceremonies etc. (Fig. 3). Poaceae as dominant family was also reported from another study<sup>15</sup>.

Home garden was the dominant source of magico-religious plants followed by wasteland, forest, farmland etc. (Fig. 4). It is because 93.6% of the magico-religious plants are raised in home gardens and domesticated due to unavailability of natural forest in the study site.

On the basis of magico-religious practices, the plants were categorized in three categories namely

sacred and religious rite (SAR), taboo (TAB) and magical belief system (MAG). The results given in Fig. 5 showed that SAR was the dominant use category with 47 spp. followed by TAB (10 spp.) and MAG (10 spp.).

Among three use categories, SAR was dominant use category and accounts for about 74.6% of total plants such as *Areca catechu*, *Alpinia nigra*, *Arundo donax*, *Brassica juncea*, *Bambusa tulda*, *Calamus tenuis*, *Carica papaya*, *Cicer arietinum*, *Cocos nucifera*, *Capsicum annuum*, *Curcuma caesia*, *Clerodendrum glandulosum* etc. were utilized for conducting various religious and festival ceremonies etc.

There were 10 plants species namely *Acacia farnesiana*, *Acorus calamus*, *Allium sativum*, *Alocasia*



Fig. 2 — Important magico-religious plants used by Mising tribe: (a) *Phragmites karka*, (b) *Sarcochlamys pulcherrima*, (c) *Solanum anguivi*, (d) *Zingiber officinale*, (e) *Musa balbisiana*, (f) *Litsea salicifolia*, (g) *Gossypium arboretum*, (h) *Ficus hispida*, (i) *Ficus racemosa*

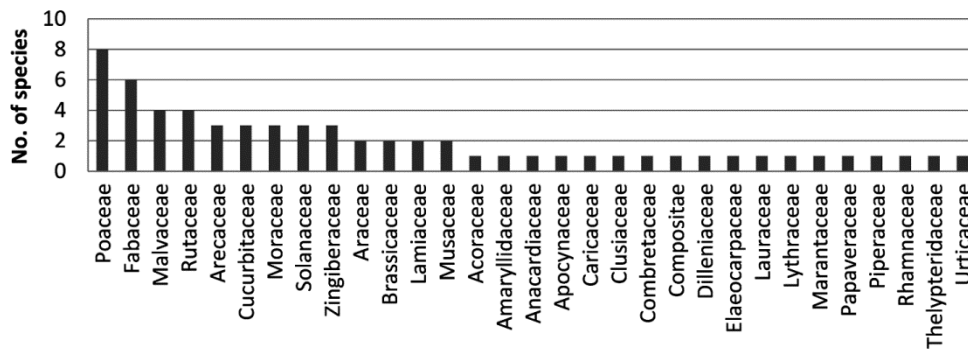


Fig. 3 — Plant families belong to magico-religious plants.

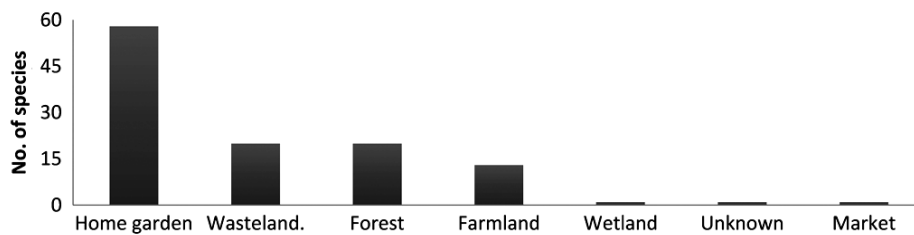


Fig. 4 — Habitat of plants used in magico-religious practices.



*macrorrhizos*, *Brassica juncea*, *Capsicum annuum*, *Murraya koenigii*, *Sinapis alba*, *Terminalia arjuna* and *Ziziphus jujuba* which are used in MAG use category to get protection against unforeseen forces. Traditionally, 6 plants species namely *Acacia farnesiana*, *Acorus calamus*, *Alocasia macrorrhizos*, *Murraya koenigii*, *Terminalia arjuna* and *Ziziphus jujuba* were raised near traditional houses to prevent entry of unforeseen forces. Whereas *Acorus calamus*, *Allium sativum*, *Brassica juncea* and *Sinapis alba* were used locally as a repellent of unforeseen forces because of its peculiar odour. Similar finding was reported for *Allium sativum*, *Acorus calamus* and *Brassica rapa*<sup>18,28</sup>. Traditionally, *Capsicum annuum* was also used similarly as reported in other study<sup>27</sup>.

In TAB use category, 11 tree species were traditionally prohibited for planting at the front yard of house and considered as a taboo, viz., *Bombax ceiba*, *Citrus megaloxycarpa*, *Citrus limon*, *Dillenia indica*, *Elaeocarpus floribundus*, *Erythrina stricta*, *Ficus religiosa*, *Lagerstroemia speciosa*, *Mangifera indica*, *Tamarindus indica* and *Ziziphus jujuba*. It is because these plants have those characteristics that are considered as inauspicious to see in early morning such as spines, prickles and sour taste fruits.

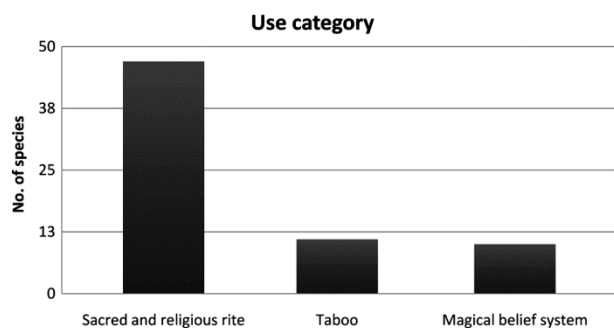


Fig. 5 — Major use categories of plants in magico-religious practices.

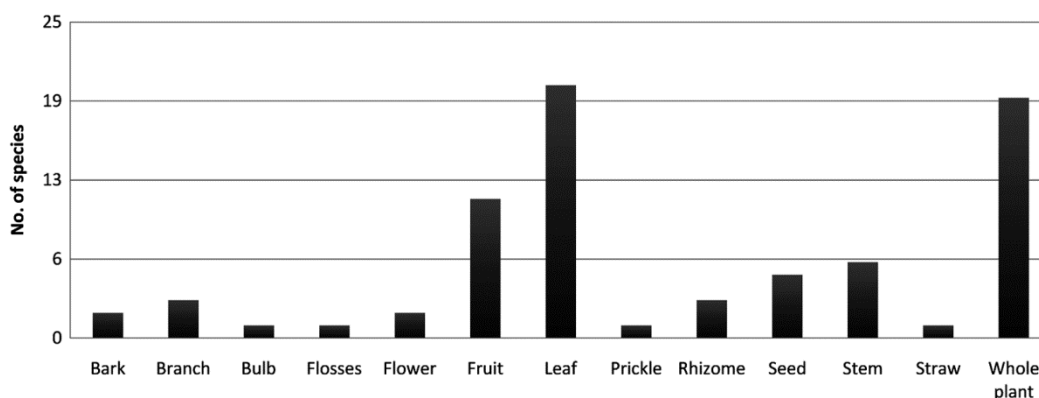


Fig. 6 — Plant parts used in magico-religious practices.

The leaves were dominant plant parts used in magico-religious practice of Mising tribe followed by whole plant, fruit, stem, seed, etc. (Fig. 6). It is because leaves are exclusively used to conduct various magico-religious practices such as offering in religious ceremonies, purification rituals during final rite, decoration of main entrance during marriage ceremony etc. Similar finding was reported from Curanderos of Ecuador highlands<sup>29</sup>.

#### Informant consensus factor

Among all use categories of magico-religious practices, SAR had highest informant consensus factor ( $F_{ic}$ ) value i.e., 0.977 followed by MAG and TAB (Table 4). In SAR use category, highest  $F_{ic}$  value i.e., 0.977 and obtained due to highest use report of plant species viz., *Areca catechu*, *Piper betle* and *Oryza sativa* with 80. In MAG, use category,  $F_{ic}$  value was 0.974 and it was due to higher use report in *Allium sativum* with 65, followed by *Acorus calamus* (42), *Brassica juncea* (35), *Terminalia arjuna* (22), etc. In TAB use category,  $F_{ic}$  value was 0.956 and it was due to higher use reports in *Ziziphus jujuba* with 56, *Ficus religiosa* (49), *Citrus megaloxycarpa* (39), etc.

Table 4 — Informant consensus factor of three use categories

Category of magico-religious plant uses	Number of taxa	Number of use reports	Informants' consensus factor ( $F_{ic}$ )*
Sacred and religious rites (SAR)	47	2072	0.977
Taboos (TAB)	11	232	0.956
Magical belief system (MAG)	10	349	0.974
Total	63	2653	

\*Factor informants' consensus =  $n$  (use reports -  $n$ taxa)/( $n$ use reports - 1)

**Valuation of magico-religious plants**

*Brassica juncea* had highest score in total Cultural Importance index (CI) followed by *Mangifera indica*, *Areca catechu*, *Oryza sativa* etc. (Table 5). *Brassica juncea* had highest valuation among all other plant species due to maximum use of

oil obtained from seeds in both SAR (sacred and religious rites) and MAG (magical belief system) and also its utilization is relatively higher than other plants. Similar finding was reported in *Deori* tribe of Assam wherein *Brassica juncea* had highest CI index, followed by *Dillenia indica*, *Eupatorium sp.* etc.<sup>30</sup>.

Table 5 — Cultural important index of twenty plants used in magico-religious practices

Plant	Family	FC	NU	UR	CI			Total CI
					SAR	MAG	TAB	
<i>Acorus calamus</i> L.	Acoraceae	42	1	42	-	0.525	-	0.525
<i>Allium sativum</i> L.	Amaryllidaceae	65	1	65	-	0.813	-	0.813
<i>Mangifera indica</i> L.	Anacardiaceae	65	2	88	0.813	-	0.288	1.101
<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	Apocynaceae	30	1	30	0.375	-	-	0.375
<i>Alocasia macrorrhizos</i> (L.) G. Don.	Araceae	11	1	11	-	0.138	-	0.138
<i>Colocasia esculenta</i> (L.) Schott	Araceae	56	1	56	0.700	-	-	0.700
<i>Areca catechu</i> L.	Arecaceae	80	1	80	1.000	-	-	1.000
<i>Calamus tenuis</i> Roxb.	Arecaceae	40	1	40	0.500	-	-	0.500
<i>Cocos nucifera</i> L.	Arecaceae	46	1	46	0.575	-	-	0.575
<i>Brassica juncea</i> (L.) Czern.	Brassicaceae	80	2	112	0.963	0.438	-	1.401
<i>Sinapis alba</i> L.	Brassicaceae	9	1	9	-	0.113	-	0.113
<i>Carica papaya</i> L.	Caricaceae	39	1	39	0.488	-	-	0.488
<i>Garcinia pedunculata</i> Roxb. Ex Buch.-Ham	Clusiaceae	46	1	46	0.575	-	-	0.575
<i>Terminalia arjuna</i> (Roxb. ex DC.) Wright & Arn.	Combretaceae	22	1	22	-	0.275	-	0.275
<i>Eupatorium cannabinum</i> L.	Compositae	14	1	14	0.175	-	-	0.175
<i>Cucurbita maxima</i> Duchesne	Cucurbitaceae	16	1	16	0.200	-	-	0.200
<i>Lagenaria siceraria</i> (Molina) Standl.	Cucurbitaceae	45	1	45	0.563	-	-	0.563
<i>Momordica charantia</i> L.	Cucurbitaceae	14	1	14	0.175	-	-	0.175
<i>Dillenia indica</i> L.	Dilleniaceae	52	2	66	0.425	-	0.400	0.825
<i>Elaeocarpus floribundus</i> Blume	Elaeocarpaceae	35	1	35	-	-	0.438	0.438
<i>Acacia farnesiana</i> (L.) Willd.	Fabaceae	6	1	6	-	0.075	-	0.075
<i>Cicer arietinum</i> L.	Fabaceae	49	1	49	0.613	-	-	0.613
<i>Erythrina stricta</i> Roxb.	Fabaceae	21	1	21	-	-	0.263	0.263
<i>Flemingia strobilifera</i> (L.) W.T. Aiton	Fabaceae	20	1	20	0.250	-	-	0.250
<i>Tamarindus indica</i> L.	Fabaceae	35	1	35	-	-	0.438	0.438
<i>Vigna radiate</i> (L.) R. Wilczek	Fabaceae	24	1	24	0.300	-	-	0.300
<i>Clerodendrum glandulosum</i> Lindl.	Lamiaceae	7	1	7	0.088	-	-	0.088
<i>Ocimum tenuiflorum</i> L.	Lamiaceae	74	1	74	0.925	-	-	0.925
<i>Litsea salicifolia</i> (J. Roxb. ex Nees) Hook. f.	Lauraceae	20	1	20	0.250	-	-	0.250
<i>Lagerstroemia speciosa</i> (L.) Pers.	Lythraceae	22	1	22	-	-	0.275	0.275
<i>Bombax ceiba</i> L.	Malvaceae	11	1	11	-	-	0.138	0.138
<i>Corchorus capsularis</i> L.	Malvaceae	43	1	43	0.538	-	-	0.538
<i>Gossypium arboreum</i> L.	Malvaceae	79	1	79	0.988	-	-	0.988

(Contd.)

Table 5 — Cultural important index of twenty plants used in magico-religious practices

Plant	Family	FC	NU	UR	CI			Total CI
					SAR	SAR	SAR	
<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	33	1	33	0.413	-	-	0.413
<i>Phrynium pubinerve</i> Blume	Marantaceae	56	1	56	0.700	-	-	0.700
<i>Ficus hispida</i> L.f	Moraceae	37	1	37	0.463	-	-	0.463
<i>Ficus racemosa</i> L.	Moraceae	44	1	44	0.55	-	-	0.550
<i>Ficus religiosa</i> L.	Moraceae	49	1	49	-	-	0.613	0.613
<i>Musa balbisiana</i> Colla	Musaceae	77	1	77	0.963	-	-	0.963
<i>Musa × paradisiaca</i>	Musaceae	18	1	18	0.225	-	-	0.225
<i>Papaver somniferum</i> L.	Papaveraceae	17	1	17	0.213	-	-	0.213
<i>Piper betle</i> L.	Piperaceae	80	1	80	1.000	-	-	1.000
<i>Arundo donax</i> L.	Poaceae	28	1	28	0.350	-	-	0.35
<i>Bambusa tulda</i> Roxb.	Poaceae	77	1	77	0.963	-	-	0.963
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	71	1	71	0.888	-	-	0.888
<i>Heteropogon contortus</i> (L.) P.Beauv. ex Roem. & Schult.	Poaceae	53	1	53	0.663	-	-	0.663
<i>Oryza sativa</i> L.	Poaceae	80	1	80	1.000	-	-	1.000
<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	Poaceae	55	1	55	0.688	-	-	0.688
<i>Saccharum officinarum</i> L.	Poaceae	39	1	39	0.488	-	-	0.488
<i>Saccharum ravennae</i> (L.) L.	Poaceae	12	1	12	0.150	-	-	0.150
<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	59	2	75	-	0.238	0.700	0.938
<i>Citrus limon</i> (L.) Osbeck	Rutaceae	26	1	26	-	-	0.325	0.325
<i>Citrus megaloxycarpa</i> Lush.	Rutaceae	39	1	39	-	-	0.488	0.488
<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	15	1	15	-	0.188	-	0.188
<i>Zanthoxylum oxyphyllum</i> Edgew.	Rutaceae	30	1	30	0.375	-	-	0.375
<i>Capsicum annuum</i> L.	Solanaceae	48	2	56	0.600	0.100	-	0.700
<i>Solanum anguivi</i> Lam.	Solanaceae	26	1	26	0.325	-	-	0.325
<i>Solanum melongena</i> L.	Solanaceae	51	1	51	0.638	-	-	0.638
<i>Thelypteris angustifolia</i> (Wild.) Proctor	Thelypteridaceae	16	1	16	0.200	-	-	0.200
<i>Sarcochlamys pulcherrima</i> Goud.	Urticaceae	43	1	43	0.538	-	-	0.538
<i>Alpinia nigra</i> (Gaertn.) Burt	Zingiberaceae	55	1	55	0.688	-	-	0.688
<i>Curcuma caesia</i> Roxb.	Zingiberaceae	46	1	46	0.575	-	-	0.575
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	62	1	62	0.775	-	-	0.775

SAR- Sacred and Religious rites, MAG-Magical belief system, TAB-Taboo and TOT-Totem

The CI index of plant spp. used in magico-religious practices varies within plant family such as Arecaceae had two plant species i.e., *Colocasia esculenta* and *Alocasia macrorrhizos* wherein *Colocasia esculenta* had higher CI with 0.7 than *Alocasia macrorrhizos* (0.138). In Arecaceae, there were 3 species wherein *Areca catechu* had highest CI with 1, followed by *Cocos nucifera* and *Calamus tenuis*. In Brassicaceae, there were 2 spp. and *Brassica juncea* had highest CI with 1.401, followed by *Sinapis alba*. In Cucurbitaceae, there were 3 spp. and *Lagenaria siceraria* had highest CI with 0.563, followed by *Cucurbita maxima* and *Momordica charantia*. In Fabaceae, there were 6 spp. and *Cicer arietinum* had highest CI with 0.613, followed by *Tamarindus indica*, *Vigna radiata*, *Erythrina stricta*, *Flemingia strobilifera* and *Acacia farnesiana*. In Lamiaceae,

there were 2 spp. and *Ocimum tenuiflorum* had highest CI with 0.925, followed by *Clerodendrum glandulosum*. In Malvaceae, there were 4 spp. and *Gossypium arboreum* had highest CI with 0.988, followed by *Corchorus capsularis*, *Hibiscus rosa-sinensis* and *Bombax ceiba*. In Musaceae, there were 2 spp. and *Musa balbisiana* had highest CI with 0.963 followed by *Musa × paradisiaca*. In Moraceae, there were 3 spp. and *Ficus religiosa* had highest CI with 0.613, followed by *Ficus racemosa* and *Ficus hispida*. In Poaceae, there were 8 spp. and *Oryza sativa* had highest CI with 1, followed by *Bambusa tulda*, *Cynodon dactylon*, *Phragmites karka*, *Heteropogon contortus* and *Saccharum officinarum*. In Rutaceae, there were 4 spp. and *Citrus megaloxycarpa* had highest CI with 0.488, followed by *Zanthoxylum oxyphyllum*, *Citrus limon* and

*Murraya koenigii*. In Solanaceae, there were 3 spp. and *Capsicum annuum* had highest CI with 0.700, followed by *Solanum melongena* and *Solanum anguivi*. In Zingiberaceae, there were 3 spp. and *Alpinia nigra* had highest CI with 0.688, followed by *Zingiber officinale* and *Curcuma caesia*. The CI index varies within same plant family it may be because the use of certain species for magico-religious practices is done for specific magico-religious purpose.

Based on use categories, *Areca catechu*, *Oryza sativa* and *Piper betle* had highest score in CI index in SAR use category because these species have relatively higher cultural importance (Table 5). *Allium sativum* had highest valuation in MAG use category because many informants reported its uses for dragging away of unforeseen forces as well as curing of minor ailments especially in children. *Ziziphus jujuba* had highest valuation in TAB use category due to its presence of spines and sour taste fruit. *Areca catechu*, *Oryza sativa* and *Piper betle* had highest valuation in SAR use category because these species were exclusively used in many religious ceremonies as an offering. Similar finding was reported from Deori tribe of Assam wherein *Areca catechu*, *Brassica juncea*, *Gossypium herbaceum*, etc. had highest CI<sup>30</sup>.

**Intra-cultural variation of plant knowledge on magico-religious practices**

The intra-cultural variation of plant knowledge was done based on age groups (three age groups i.e., Young <40 years, Adult ≥ 40 to < 60 years and Old ≥ 60 years) and gender (men and women). No significant difference in plant knowledge was observed among three age groups i.e., <40 years, ≥ 40 to < 60 years and ≥ 60 years in none of the use categories and the null hypothesis (i) was accepted (Table 6). It is due to the active involvement of all age groups in these practices and also better transfer of magico-religious knowledge to the younger generation. Women had significant higher plant knowledge than men in two use

categories i.e., MAG & TAB and also in overall use categories and the null hypothesis (ii) was rejected. It is because of the higher involvement of women in household activities such as caring of children, traditional healthcare and other domestic works. However, in Deori tribe of Assam no significant difference of magico-religious plant knowledge between men and women was reported<sup>30</sup>.

Null hypothesis (i) was accepted as  $p > 0.05$  and  $H_0$  (ii) was rejected as  $*p < 0.05$  in MAG, TAB and Over all categories.

**Most important species and species for conservation priorities among plants used for magico-religious practices**

*Areca catechu* was ranked 1<sup>st</sup> in most important species (MIS) followed by *Gossypium arboreum*, *Piper betle*, *Musa balbisiana* and *Brassica juncea* (Table 7). It may be because of their higher importance in many cultural, religious and festival ceremonies. *Gossypium arboreum* and *Brassica juncea* are used for lighting lamp; whereas *Piper betle* and *Musa balbisiana* are used in offering during many religious ceremonies.

*Gossypium arboreum* was ranked 1<sup>st</sup> in species for conservation priorities (SCP) followed by *Phragmites karka*, *Piper betle*, *Alpinia nigra* and *Musa balbisiana* (Table 7). It may be because of extensive use of flosses in many religious ceremonies especially for lighting lamp and preparing ceremonial altar. Moreover, this plant was found less abundant in the

Table 7 — MIS and SCP of magico-religious plants with ranking

Species	MIS	SCP
<i>Areca catechu</i> L.	1	-
<i>Piper betle</i> L.	3	3
<i>Musa balbisiana</i> Colla	4	5
<i>Gossypium arboreum</i> L.	2	1
<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	-	2
<i>Alpinia nigra</i> (Gaertn.) Burt	-	4
<i>Brassica juncea</i> (L.) Czern.	5	-

MIS-Most Important Species and SCP-Species for Conservation Priorities

Table 6 — Intra-cultural variation of plant knowledge with respect to age and gender groups

Age and gender	N	SAR (Mean ± SD)	MAG (Mean ± SD)	TAB (Mean ± SD)	Over all (Mean ± SD)
Young people <40	36	26.083 ± 6.929 <sup>a</sup>	2.778 ± 1.675 <sup>a</sup>	3.944 ± 3.070 <sup>a</sup>	31.389 ± 9.857 <sup>a</sup>
Adults (≥ 40 to < 60 years)	27	25.000 ± 5.106 <sup>a</sup>	3.148 ± 1.854 <sup>a</sup>	4.852 ± 2.348 <sup>a</sup>	32.074 ± 7.295 <sup>a</sup>
Old (≥ 60 years)	17	27.000 ± 5.657 <sup>a</sup>	2.764 ± 1.480 <sup>a</sup>	4.412 ± 2.181 <sup>a</sup>	33.117 ± 6.725 <sup>a</sup>
Men	55	25.600 ± 6.715 <sup>a</sup>	2.545 ± 1.585 <sup>a</sup>	3.964 ± 2.937 <sup>b</sup>	30.673 ± 8.922 <sup>a</sup>
Women	25	26.600 ± 4.387 <sup>a</sup>	3.680 ± 1.676 <sup>b*</sup>	5.200 ± 1.708 <sup>a*</sup>	34.880 ± 6.260 <sup>b*</sup>

SAR-Sacred and religious rites, MAG-Magical belief system and TAB-Taboos  
Same letter of value in the same column showed not significantly different at 0.05 probability level.

Table 8 — Correlation matrix among MIS, SCP and abundance

	SCP	MIS	ABD
SCP	1	0.641*	-0.378*
MIS		1	-0.129 <sup>ns</sup>
ABD			1

ABD- Abundance, MIS-Most Important Species, SCP- Species of Conservation Priority and

The levels of significance are: ns= non-significant,

\* = significant at  $p < 0.01$  level.

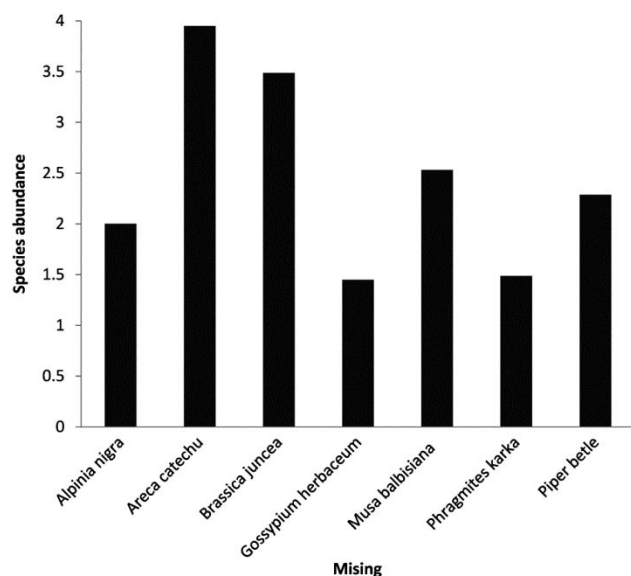


Fig. 7 — Abundance of important magico-religious plants

Scale 0 indicates absent, 1 (rare), 2 (less), 3 (moderate), 4 (common)

villages that may be the reason for prioritising species for conservation (SCP). However, similar study was done wherein *Vitellaria paradoxa* was reported as 1<sup>st</sup> ranked in both MIS and SCP<sup>25</sup> whereas *Piliostigma reticulatum* was ranked as 1<sup>st</sup> in SCP<sup>31</sup>.

MIS and SCP had high and positive correlation with 0.641 values whereas SCP and abundance had negative and significant correlation (Table 8). It may be because of respondents give higher priority for conservation of species based on its importance in magico-religious practices. The results presented in Table 8 showed that relationship between SCP and MIS was positive and highly significant but negative and highly significant between SCP and ABD. It may be because of respondent give higher priority for conservation which have lesser abundance.

Among the species of highest MIS and SCP value, the abundance of *Areca catechu* and *Brassica juncea* were found to be common whereas *Gossypium arboreum* and *Phragmites karka* were rare (Fig. 7).

## Conclusions

Magico-religious practice is one of the important socio-cultural and religious aspects of Mising tribe, Assam. They are follower of *Donyi polo* and utilized 63 plant species belonging to 56 genera in magico-religious practices. Poaceae was the dominant family and followed by Fabaceae, Malvaceae, Rutaceae etc. Three major use categories were found in magico-religious practices namely sacred and religious rite (SAR), taboo (TAB) and magical belief system (MAG). Of these, SAR was the dominant use category with 47 spp. The leaves were dominant plant parts used in magico-religious practices. SAR use category had the highest  $F_{ic}$  value with 0.977 followed by MAG and TAB. *Brassica juncea* had the highest cultural importance index followed by *Mangifera indica*, *Areca catechu*, *Oryza sativa* etc. in overall use categories. However, *Areca catechu* had the highest CI index in SAR, *Allium sativum* (MAG) and *Ziziphus jujuba* (TAB). No significant difference in plant knowledge was observed among three age groups i.e., <40 years,  $\geq 40$  to < 60 years and  $\geq 60$  years age groups; however, women had significantly higher plant knowledge than men in magical belief system, taboos and overall use categories. *Areca catechu* was ranked 1<sup>st</sup> in most important species (MIS) whereas *Gossypium arboreum* was ranked 1<sup>st</sup> in species for conservation priorities (SCP). MIS and SCP had high and positive correlation whereas SCP and abundance had negative and significant correlation. SCP and MIS showed positive and highly significant but negative and highly significant between SCP and ABD.

## Acknowledgements

The authors would like to thank the people of Mising tribe from Dhemaji, Lakhimpur and Sonitpur districts of Assam, India for sharing their valuable magico-religious knowledge for completing the present study.

## Conflicts of Interests

We have no conflict of interest to declare.

## Author Contributions

GP, CLS and MS have participated in conceptualization, formal analysis, drafting and approval of the final version. The research article has not been submitted nor published in other journals.

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