



# Medicinal Plants used as Abortifacient among Karbis of Assam, India

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## Abstract

Living a healthy reproductive life is one of the major concerns among women. Unwanted conception among rural tribal population like the Karbis is managed by using traditional medicinal plants. The present work was carried out to document the traditional uses of medicinal plants or its products for inducing abortion. Field studies were undertaken in different Karbi dominated areas of Karbi Anglong district using informal and formal conversations, discussions, and semi-structured and unstructured interviews involving 35 informants (male 11 and female 24). A total of twelve medicinal plants, belonging to twelve genera and twelve families were reported to be used for inducing abortion. The study showed that the Karbis are rich in ethnomedicinal practises using plant and its products as an abortifacient. The knowledge of the practises of traditional medicines needs to be incorporated with scientific methods and concepts for betterment of future mankind. Biochemical evaluations of abortifacient plants need to be studied for its active phytochemical responsible for inducing abortion.

**Keywords:** Abortifacient, Karbi, Medicinal Plants, Traditional

## 1. Introduction

The use of plants in traditional medicines is well known in rural areas as well as among the urban population for management of various ailments including reproductive health<sup>1,2</sup>. Living a healthy reproductive life is what everyone is concern about and it also includes getting rid of unwanted conception or control of birth by adopting various contraceptives available in Community Health Centre in their vicinity. Among rural population, it is achieved through traditional methods using medicinal plants dependent partly or fully on medicine-men or local herbal practitioners and partly in Community Health Centre. But despite the presence of modern medical facilities, dependency on medicinal plants for treatment of various ailments is still vibrant among the Karbis, a major indigenous tribe of Karbi Anglong district (25°30' to 26°36' N and 92°90' to 93°54' E) of Assam State, Northeast India. Karbis, linguistically, belong to Tibeto-Burman, and more particularly to the Kuki-Chin sub

group of languages and practice animistic traditional religion and also traditionally very rich in the usage of plants medicines<sup>3,4,5</sup>. Herbal medicines are being used by Karbis since time immemorial for treatment of various kinds of ailments including gynaecological problems<sup>6</sup>. Uses of plant-based ethnomedicines along with socio-religious practices are indispensable for maintenance of women's reproductive health<sup>7</sup>. Studies on reproductive health especially self-induced abortion have not been carried out among the studied tribe. Hence, in the light of these, the present work was carried out to document the traditional use of plants or its products for inducing abortion.

## 2. Materials and Methods

### 2.1 Study Area and Selection of Sites

Field studies were undertaken between the periods of September 2018 to December 2019 in different Karbi

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dominated areas of Karbi Anglong district to collect information about the traditional remedies of self-induced abortion using medicinal plants. Based on preliminary ethnobotanical survey, villages, households and informants have been selected randomly. A total of 16 villages, rural, semi-rural and urban villages were surveyed for the purpose.

## 2.2 Sampling Methods and Data Collections

Gathering information and consent from village head, locally called *Rongasar*, was the first step done to select informants. Informant with knowledge of ethnomedicinal plants and his/her willingness to share information were the primary criterion followed for sampling. Some of the criteria were considered for selection of informants- elderly men and women of above 40 years of age; people with a sound knowledge of medicinal plants; birth attendants who are exclusively woman; traditional healer, charmer, folk involved in collection of medicinal plants from forest and woman who had self-induced abortion using herbal medicines. Informal and formal conversations, discussions, and semi-structured and unstructured interviews<sup>8,9</sup>, were asked from elderly informants (n= 35) both males (n=11) and females (n=24) from randomly selected sites along with field visits. Semi structured questionnaires were given to the informants; one questionnaire was common for both male and female while the other was exclusively for female informants. Interviews were conducted in local Karbi language. Though male populations were also included in the interview but focus was made on the traditional use of medicinal plants that induced abortion.

## 2.3 Ethical Consideration

Approval for the study was obtained from Institutional Ethics Committee, Gauhati University, Guwahati-781014, Assam, India with approval letter no vide GUEC-18/2017 date 17.05.2018, since the research involves the traditional medicinal practices of Karbi tribe. All efforts were made to assured confidentiality of all information provided by informants.

## 2.4 Collections and Identification of Medicinal Plants

Plants used as an abortifacient as being reported were collected from different habitats with the help of informants. Few medicinal plants were collected from the home garden. Plants were identified from available literatures, processed<sup>10-19</sup> and prepared voucher specimen, some of which were deposited in the herbarium of the

department of Botany, Gauhati University, Guwahati and in the department of Botany, Nowgong College (Autonomous), Nagaon, Assam.

## 3. Result and Discussion

### 3.1 Informants Demographic Characteristics and their Knowledge of Medicinal Plants

A total of 35 informants were interviewed and among them 11 informants were male while 24 informants were female. Among the 24 female informants, 20 (83.33%) of them had self-induced abortion using either abortifacient plants or consulting medical officers in Community Health Centre. Based on the questionnaires provided, the participated informants gave a positive response (Table 1a). All the participated informants agreed (100%) that the Karbis have rich indigenous knowledge of utilization of medicinal plants. 11 women informants (45.83%) response to sole use of medicinal herbs for abortion, 3 women informants (12.5 %) gave positive response to use both medicinal herbs followed by medical facilities while 6 (25%) women informants had abort taking medical facilities only (Table 1b). Among 35 informants, 5 of them (2 males and 3 females) were traditional health practitioner taking this practice as profession while other informants despite having sound knowledge of abortifacient plants, were not interested to take it professionally. But instead, they utilised their knowledge whenever required or when someone in their family asked for it (Table 1).

### 3.2 Diversity and Multiple Use of Medicinal Plants Obtained

The present study is the result of the survey and interview undertaken in the study sites from local people during the period September 2018 - December 2019. It focussed mainly on management of self-induced abortion using plant medicines as reported by the Karbi tribe in and around the study area. A total of twelve medicinal plants, belonging to twelve genera and twelve families were reported to be used for inducing abortion (Table 2). Different plant parts like stem, rhizomes, roots, fruits, flowers and seeds were utilised in the form of different formulations.

The most important plants for inducing abortion were *Dendrocalamus hemiltonii*, *Musa balbisiana*, *Lablab purpureus*, *Achyranthes aspera* and *Carica papaya*. The

**Table 1.** Response of informants (No. of informants = 35)

## a) Common questions for both male and female (Male = 11 Female = 24)

Questions	Response		% of agreement	
	Yes	No	Yes	No.
i) Do you agree that Karbis have rich knowledge of use of medicinal plants for treatment of common ailments?	35	0	100%	0
ii) Do you know the use of ethnomedicinal plants as an abortifacient agent?	35	0	100%	0
iii) Can you suggest any ethnomedicinal plants for inducing abortion?	9	15	25%	42%

## b) Questions exclusively for female informant (n=24)

Questions	Response		% of agreement	
	Yes	No	Yes	No.
i) Do you know the use of ethnomedicinal plants for inducing abortion?	24	0	100%	0
ii) Have you performed abortion for unwanted pregnancy using only plants products?	11	13	45.83%	54.16%
iii) Have you performed abortion for unwanted pregnancy using plants products and visiting Health Care Centre?	3	21	12.5%	87.5%
iv) Have you performed abortion for unwanted pregnancy only in Health Care Centre?	6	18	25%	75%

former two plant species are almost obsolete but the latter plant species are still in use. Although, their use is gradually declining as people try to seek medical help for such issue. *Carica papaya* has long been recognised to have many medicinal properties including contraceptives<sup>20</sup>. Tender twigs of *Achyranthes aspera* are reported to be used for reducing the complicity of labor<sup>6</sup>. The stem extracts of *A. aspera* were also reported by the participating informants in treatment of jaundice among the Karbis; the extracted juice is applied on a thread and it is tied on the arm for the same.

*Plumbago zeylanica*, apart from being recognised as an abortifacient plant, it has other medicinal uses practised among the Karbis. Root extracts are reported to have been used as temporary birth control while leaves and young twig extracts are said to be used for treatment of jaundice. Plant species like *Lablab purpureus* is used as vegetables but when the plant are more than a year older than consumption of its fruits are usually avoided as it is said to be harmful to human health. It is to be noted that for inducing abortion, roots are collected from a plant attaining more than two years of age; the folk belief

that such plants are effective for inducing abortion. The rhizomes of *Kaemferia galanga* are also used among the Karbis for treatment of rabies. Another plant species, frequently discussed among the Karbis are *Croton tiglium* which are quickest and effective remedy use for clearing stomach during constipation. Seeds are crushed and mixed with water and taken orally to give quick relief from constipation. Consumption of seeds during pregnancy is highly avoided but in order to manage unwanted pregnancy, these seeds, on mixing with water are taken orally to induce abortion.

### 3.3 Folk Belief of the Selection and Use of Plants as Abortifacient

The study showed that the Karbis are rich in ethnomedicinal practices using plant and its products as abortifacient agent. The use of certain plant medicines for inducing abortion is based on folk belief. Abortion inducing plants mainly *Dendrocalamus hamiltonii* is known to every elderly folk people and whenever they talk about abortifacient plants, they often narrate its uses

at top priority. The elderly folk also narrate about plant having antifertility properties but pay least important. They considered conception as part of womanhood and is natural. They have a concept that “children are God’s gift and conceptions will happen naturally till menopause”. So only few people used medicinal plants that have antifertility properties. There are certain other beliefs related to selection of medicinal plants for the same. The cultural belief of selection of stem of *Plumbago zeylanica* for inducing abortion is that the stem should be of the average size of male organ to carry out the purpose successfully<sup>7</sup>. The roots of *Lablab purpureus* growing towards the east are belief to have more efficacy than towards other direction. The reason may be that the folk belief east direction as fortunate as it is compared with

sun rise. The roots of *Lablab purpureus* of 4 to 5 cm long are cut, dried and stored in earthen pot for future use. The fruit latex of *Papaver somniferum* L. are not available all the season, so it is soaked in cotton, dried it and rolled in banana leaf for future use.

The study focussed on knowledge and practices of managing abortion which is personal and sensitive. Some informants were not willing to share information as seemed embarrassed or may be fear. Few informants who were professional traditional medicine practitioner were reluctant to give all information about the names of plants or its usage because they fear it might be misused or diluted or it may affect their means of income for those who take up as profession.

**Table 2.** Medicinal plants use as abortifacient and mode of use

Sl. no.	Botanical name	Local name	Parts used	Dosage and mode of use
1	<i>Plumbago zeylanica</i> L. (Plumbaginaceae)	Samlok	Stem	Stem of 6 cm (approximately) is inserted into reproductive tract for 1 day
2	<i>Dendrocalamus hamiltonii</i> Nees & Arn. ex Munro (Poaceae)	Keipho	Stem	3 ml ash filtrate taken orally twice a day; to continue till blood traces comes.
3	<i>Lablab purpureus</i> (L.) Sweet. (Fabaceae)	Thepak	Root	Approximately 6 ml root extract along with roots extract of <i>M. pudica</i> taken orally for 2 months
4	<i>Musa balbisiana</i> Colla (Musaceae)	Nusador	Rhizome	About 5 ml ash filtrates are taken orally thrice a day for 2 days.
5	<i>Papaver somniferum</i> L. (Papaveraceae)	Kani	Fruit latex	Latex from fruits soaked in cotton ball, dilute in water and 3 ml approximately are taken twice a day for three days.
6	<i>Paederia foetida</i> Roxb. (Rubiaceae)	Rikangnemthu	Twinning stem	Stem is inserted in vagina and kept inside till blood traces come out; Stem extract are also taken orally.
7	<i>Ananas cosmosus</i> (L.) Merr. (Bromeliaceae)	Anaros	Young fruits	One tender fruit is taken on empty stomach early in the morning for three consecutive days.
8	<i>Kaemferia galangal</i> L. (Zingiberaceae)	Bithiphaknur	Rhizome	Rhizomes extract of 10 ml taken orally to expel death foetus from womb after induced abortion.
9	<i>Carica papaya</i> L. (Caricaceae)	Mensopi	Fruits and Male flower	Raw tender fruits taken orally. Fresh male flower extract of 6-7 ml taken orally twice a day for 3 days
10	<i>Croton tiglium</i> L. (Euphorbiaceae)	Chukokathe	Seeds	Raw seeds crushed and dilute in water; taken orally once a day for 2 days
11	<i>Bombax ceiba</i> L. (Malvaceae)	Pharkong	Fruit latex	Fresh latex/gum is applied internally in vagina.
12	<i>Achyranthus aspera</i> L. (Amaranthaceae)	Nuntheparlin	Root	Approximately 6 cm root inserted into reproductive tract for 2-3 hours.

## 4. Conclusion

It is seen that the Karbis still treat traditional medicines as their first preference for management of reproductive

health. The role of medicinal plants in primary health care system is of outmost importance but due to lack of interest among the younger generation, the wealth of this knowledge is slowly declining. Attempts should be made

to harness and preserved this traditional knowledge by collecting and compiling it in a written form as well as assurance of safety, quality and efficacy of the herbal preparations. Documentation of traditional knowledge of plant medicines contribute to provides potential leads for discovering active remedial agents and through value addition, the existing ethnomedicinal practices can be encourage for the benefit of rural folk. The knowledge of the practices of traditional medicines needs to be incorporated with scientific methods and concepts for betterment of future mankind. Biochemical evaluation of abortifacient plants is in progress that will help reveal active phytochemical responsible for inducing abortion.

## 5. Acknowledgement

Authors are grateful to the informants for sharing their invaluable traditional knowledge pertaining to plant medicines for management of reproductive health of woman. Authors are also thankful to local guide, villagers and birth attendant for their assistance throughout the field study.

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