

# Ethnobotanical Studies of Medicinal Plants used In Traditional (Folk) Medicines

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**Abstract:** *The present paper deals with the results of a survey of the folk medicines, plants and their parts used and formulations which used for different diseases. . The folk medicine practitioner has unique formulations (nattu medicines) for different types diseases related to different pains, physiological, infectious, allergic and other major disease (Table 1). About fifty six plant species under thirty five family, have been utilised in folk medicine preparations. About fifty six plant species under thirty five family utilised for preparation of sixty nine formulation with single and compound combinations of folk medicines. The present survey showed that, in folk medicines maximum formulations prepared from Leaves followed by roots, whole plant, whole fruit, bark and seeds. Similarly, the study also indicated that very less amount of flower are used in folk medicine preparations. Maximum spice plant species are used in folk medicines.*

**Keywords:** Folk medicines, Spices, Diseases, medicinal plants, formulations

## 1. Introduction

Plants have been the man's earliest source for vital medicines. Local and Indigenous people have used plant parts as their food, therapeutical agents for remedial measures shelter etc. Generally, tribals get the knowledge of the medicinal value of the plant from their ancestors and their own experiences and knowledge. About 17,000 plus flowering plants are present in India, out of this, 3500 plus are distributed in Western ghats. The traditional medical practitioner or traditional healer can be defined as "someone who is recognized by the community in which he lives as competent to provide health care by using plant parts, animal and mineral substances and certain other methods based on the social, cultural and religious backgrounds as well as the prevailing knowledge, attitudes and beliefs regarding physical, mental and social well-being and the causation of disease and disability in the community". Traditional healers used different medicinal formulas from various natural substances. They have extensive knowledge on the use of plants and herbs for medicinal and nutritional purposes. Kerala is a narrow stretch of land extending for about 565 km along the West coast of the Indian peninsula. The state is positioned from 8.2° to 12.8° N parallel and 74.8° to 77.5° E meridian, and occupies an area of 38,863 sq km. Kerala represents only 1.18% of the total geographical area and supports 3.43 % of the total population of the country.

In this state, folk medicine is one of the 3 plant based healing systems, the other 2 being tribal and *Ayurvedic* systems. Tribal medicine employs plants growing wild in the forests and is confined to forest dwelling tribals. In Kerala, these three methods of treatments (*chikitsa*) are distinguished with 3 distinct names: *Gotra chikitsa* (treatment of tribal medicine), *Nattu chikitsa* (treatment of folk medicine), and *Ayurveda chikitsa* (treatment of *ayurvedic* medicine).

The origin of folk medicine in Kerala reportedly dates back to c. 13<sup>th</sup> century AD when the monopoly of knowledge on *Ayurveda* and astronomy went down the Brahmanical hierarchy and settled among the lower castes who, in turn, got patronised by non brahmanical feudal chieftains and gradually by the well to do families. *Ayurveda*, astronomy and to some extent incantations were part of disease treatment in ancient Kerala. Though some attempts were made before independence in 1947 to collect data on folk medicine by Ainslie (1813) and Waring (1897) no systematic documentation or study is available on folk medicine of Kerala or India and hence, its actual relationship with tribal or *Ayurvedic* system of medicine cannot properly be gauged. Its origin in different parts of India may possibly be different. In the art of healing, natal care (obstetrics) is fairly an advanced field in folk medicine of Kerala. The traditional birth attendants, locally called as *vayattatties*, are highly skilled in obstetric methods and possessed good knowledge on herbal home remedies, food and nutrition (Rawat *et al.* 1996). An attempt has been made to document the different folk medicines, plants and their parts used in Kannur district of Kerala also to know the formulations to prepare folk medicines.

## 2. Methodology

Information was collected personally from Shri O. V. Balakrishna, a local folk medicine practitioner (*nattu vaidhyan*) in Eramam South, Kannur taluk and district, Kerala. He has fifty five years of experience in this field. He has maintained herbal garden and plants used for preparation of folk medicines. Presently he has joined with registered NGO to familiarise the folk medicines to the villagers and outsiders. The diseases, plants used, Malayalam name, parts used and preparations with dosage enumerated in the Table 1. The results of folk medicines presented here only by interview and documentation method. The results were not practically proved by the authors.

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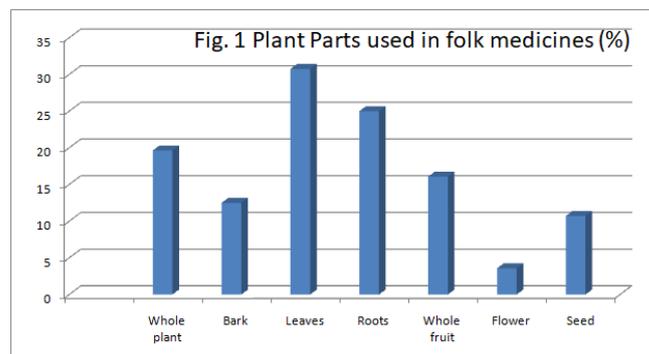
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### 3. Result and Discussions

The present survey and document study able to record about sixty nine folk medicine formulations for three different diseases. The folk medicine practitioner has unique formulations (nattu medicines) for different types diseases related to different pains, physiological, infectious, allergic and other major disease (Table 1). About fifty six plant species under thirty five family, have been utilised in folk medicine preparations. The sleeplessness physiological abnormality could be treated with four different folk medicine formulations. Similarly, normal fever and body allergy, joint pain is treated with five different folk formulations as mentioned in the Table 1. Similarly, for anemia and small pox, piles (3 formulations), stomach ache (2 formulations), blood pressure (8 formulations), sinusitis, constipations, cholera, eye sight, liver diseases, spider poison, kidney stone (each with 2 formulations) and remaining abnormalities cured by single formulations of folk medicines. The present survey showed that, in folk medicines maximum formulations prepared from Leaves (30.36%) followed by roots (25%), whole plant (19.64%), whole fruit (16.07%), bark (12.5%) and seed (10.71%). However, the study also indicated that very less amount of flower (3.57%) used in folk medicine preparations (Fig. 1). Rasiya and Nayar (2011) reported that maximum local medicines were prepared from leaves which corroborate the present results. The study also showed that maxim plants used in folk medicines belong to medicinal plants followed by spices, oil yielding plants (Coconut), fruit crops, ornamentals and some weeds. The wild edible plants also used in folk medicines as reported in the present study and also for consumption purpose as reported by Shivakumar and Murugesan (2005). Water is the general medium for majority of the preparations; other often employed media are cow milk, honey, rice water, butter milk, ghee and jaggery. It is also noticed that spices like *Zingiber officinale*, *Allium cepa*, *Allium sativum*, *Piper longum*, *Coriander sativum*, and *Curcuma longa* are the most commonly used in folk medicine formulations. Altogether 69 preparations are dealt in this work, out which ten formulations prepared by single plant species followed by seventeen formulation from 2 plant species, three drugs from triple combinations and one from four plant combinations (Table 1). This is akin to the holistic concept of *Ayurveda* which treats the individual as a whole and not merely the symptoms. In tribal medicine and folk medicines single preparations are more frequent than compound preparations (Hajra, Baishya, 1997) as indicated by the present study. The study is very informative about the folk medicines and formulations

which could be utilised either for ayurvedic or allopathy drug development. The floristic diversity which mentioned in this paper could be conserved and multiplied for future utilisation mainly for new drug constructions in allopathy or ayurveda.



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**Table 1:** Folk medicines details including scientific name, common name (Malayalam), parts used and formulations

SI No	Scientific name of Plants	Local Name (Malayalam)	Family	Parts used	Mode of preparation / uses
1	<b>Sleeplessness</b>				
i)	<i>Glycyrrhiza glabra</i>  <i>Cuminum cyminum</i>	Irattimadhuram (Malayalam) & jeera/cumin (English)	Fabaceae,  Apiaceae	Dried root of irattimadhuram and dried seeds of cumin	Powders of <i>Glycyrrhiza glabra</i> and cumin are mixed equally with one glass of milk at night (8g of powder) and consumed.
ii)	<i>Evovulus alsinoider</i>	Vishnukranthi (Malayalam)	Convolvulaceae	Whole plant	Whole plant is grinded with milk and make it as a paste. Then given it orally like balls with curd.
iii)	<i>Terminalia chebula</i> <i>Terminalia bellarica</i> <i>Phyllanthus emblica</i>	Kadukka(Malayalam) Thannikka(Malayalam) Nellikka(Malayalam), Indian gooseberry (English)	Combretaceae  Combretaceae  Euphorbiaceae	Dried fruits	Dried fruits of Amla, Kadukka, and Thannikka are collectively known as thriphala. The powders of these three fruits are mixed equally with honey and are given orally at night per day.
iv)	<i>Vernonia cinerea</i>	Poovamkurunnila (Malayalam)	Asteraceae	Entire plant	10 g of the plant extract is mixed with 100 ml of coconut oil. Boil it and use as hair oils regularly
2.	<b>Fever</b>				
i)	<i>Piper longum</i>	Thippalli (Malayalam)	Piperaceae	seeds	Seeds of thippalli is made into powder and mix with jaggery (2g of powder in 4g of jaggery) and given orally twice or thrice in a day.
ii)	<i>Oscimum sanctum</i>	Thulsi(English), thulasi(Malayalam)	Lamiaceae	leaf	Take the extract of <i>Ocimum</i> leaf about 2 to 5 ml and mix with the honey (half of the extract) and given orally.
iii)	<i>Terminalia chebula</i>	Kadukka(Malayalam)	Combretaceae	seeds	The seeds of <i>Terminalia chebula</i> is made into powder and mix it in equal amount of water and have it orally twice in a day.
iv)	<i>Cuminum cyminum</i>	Cumin(English)	Apiaceae	seeds	The cumin and jaggery are made into powder and mix it in equal amount and have it orally twice in a day.
v)	<i>Strychnos nuxvomica</i>	Kanjiram (Malayalam)	Loganiaceae	Bark	Grind the bark of <i>Strychnos</i> and apply it on palm and leg.
3	<b>Tonsillitis (throat infection)</b>				
i)	<i>Allium sativum</i>	Garlic(English), veluthulli (Malayalam)	Amarilladaceae (Liliaceae)	Scale leaves	Grind the full garlic and make it as paste without water then apply it on the side of the throat.
ii)	<i>Emelia sonchifolia</i>	Muyalcheviyan (Malayalam)	Asteraceae	Leaves	The leaf extract is applied on the skin of throat.
4	<b>Small Pox</b>				
i)	<i>Calicopteris floribunda</i> & <i>Curcuma longa</i>	Jadappoo (Malayalam)  Manjal(Malayalam)	Combretaceae  Zingiberaceae	Stem and leaves Rhizome	Mix the juice of <i>Calycopteris</i> stem and leaves with turmeric powder and given orally.
ii)	<i>Tragia involucrate</i>	Kodithoova(Malayalam)	Euphorbiaceae	Roots	Grind the leaves of <i>Tragia involucrate</i> with rice water and have it orally.
iii)	<i>Ficus carica</i>  <i>Glycyrrhiza glabra</i>	Fig(English),atthi(Malayalam), Irattimadhuram (Malayalam)	Moraceae  Fabaceae	Fruits  Roots	The fruits of fig and roots of irattimadhuram have taken in equal amount and then grind it. Have it orally with the combination of milk.
5.	<b>Stomach ache</b>				
i)	<i>Murraya koenigii</i>	Curry leaves(English)	Rutaceae	Leaves	Squeeze the curry leaves and make a decoction of it. Then have it orally.
ii)	<i>Zingiber officinale</i>	Ginger	Zingiberaceae	Roots	Squeeze the juice of ginger and make it to 50 ml then add 1 or 2 teaspoon sugar & then stir it well. Given orally.
6	<b>Blood pressure</b>				
i)	<i>Citrullus lanatus</i>	Watermelon	Cucurbitaceae	Seeds	Dry seeds of watermelon and make it powder. The patients can use daily this powder orally.
ii)	<i>Moringa oleifera</i>	Muringa (Malayalam)	Moringaceae	Bark	Make a decoction of Muringa bark &then Assifoitida resine and Induppu are added to it. Have it orally daily once in the morning.

iii)	<i>Moringa oleifera</i> & <i>Allium sativum</i>	Muringa (English) Garlic (English)	Moringaceae Liliaceae	Leaves	Equal amount of Muringa leaves & Garlic (4.860g each) are boiled in 64 owns of water & reduced to 16 owns decoction. Have it orally twice in a day.
iv)	<i>Boerhavia diffusa</i>	Thazhuthama (Malayalam)	Nyctaginaceae	Whole plant	Whole plant is crushed & juices is extracted then have it orally.
v)	<i>Aegle marmelos</i>	Koovalam (Malayalam)	Rutaceae	Tender leaves	Chew the tender leaves of <i>Aegle marmelos</i> & masticate it.
vi)	<i>Allium sativum</i>	Garlic(English)	Amarilladaceae / Liliaceae	Bulb	Grind the garlic & mix it with butter milk and have it orally.
vii)	Trhiphala ( <i>T.bellarica</i> , <i>T.chebula</i> , <i>P. emblica</i> ) & Rauwolfia serpentine	Thannikka , kadukka , nellikka(Malayalam)& Sarpagandha (Malayalam)	Combretaceae, Combretaceae, Phyllanthaceae & Apocynaceae	Fruits, roots	Powder of dried fruits of triphala and sarpagandha are mixed equally (1 teaspoon) with 1 glass of buttermilk and have it orally.
viii)	<i>Assifoitida</i> , <i>Zingiber officinale</i>	Kayam(Malayalam), ginger(English)	Zingiberaceae	Recine Rhizome	Make the decoction of dried ginger then add some assifoitida, and have it orally.
7	<b>Appendicitis</b>				
i)	<i>Moringa oleifera</i>	Muringa (Malayalam)	Moringaceae	Bark	To the decoction of moringa bark add assifoitida powder and rock salt (little amount). Then have it daily in the morning (200 ml of moringa bark juice in 1000 ml of water).
8	<b>Sinusitis</b>				
i)	<i>Ocimum sanctum</i>	Thulasi (Malayalam)	Lamiaceae	Leaves	Inhale the dried leaf powder of thulasi regularly
ii)	<i>Phyllanthus emblica</i>	Amla (English)	Phyllanthaceae	Berries	After the removal of seeds, grind the amla and drink with milk.
9	<b>Constipation</b>				
i)	<i>Cynodon dactylon</i>	Darbha(Sanskrit)	Poaceae	Leaf	Grind the darbha with mortar & pestle, take the juice and have it orally (1/2glass per a day).
ii)	<i>Ricinus communis</i>	Caster (English)	Euphorbiaceae	Seed oil	Small amount of castor oil is mixed to the boiled milk and have it.
10	<b>Cholera</b>				
i)	<i>Aegle marmelos</i> , <i>Sida cordifolia</i> & <i>Zingiber officinale</i>	koovalam(Malayalam) , Kurumthotty (Malayalam) & Inchi (Malayalam)	Rutaceae , Malvaceae & Zingiberaceae	Roots & Rhizome	Roots of <i>Aegle marmelos</i> & <i>Sida cordifolia</i> and the rhizome of Ginger are made in to decauction, then to this add some puffed rice and make it as kanji. Have it orally.
ii)	<i>Spondias pinnata</i> & <i>Coccos nucifera</i>	Ambazham(Malayalam)& Thengu (Malayalam)	Anacardiaceae & Arecaceae	Bark & coconut milk	To the filtered juice of <i>Spondias pinnata</i> bark add some coconut milk and have it orally.
11	<b>Anemia</b>				
i)	<i>Azadirachta indica</i>	Veppu(Malayalam), Neem(English)	Miliaceae	flower	The dried flowers of Neem is powdered and have it orally by combining with ghee.
ii)	<i>Phyllanthus amarus</i>	Keezharnelli(Malayalam)	Euphorbiaceae	Whole plant	The plant is grinded and have it orally with cow milk
iii)	<i>Moringa oleifera</i>	Muringa(Malayalam)	Moringaceae	leaves	Make the curry of moringa leaves by adding coconut.
12	<b>Eye Infection / Eye Discharge</b>				
i)	<i>Alternanthera sessilis</i>	Ponnamkanii cheera(Malayalam)	Amarantheceae	Whole plant	To the juice of <i>Alternanthera</i> add 2 to 3 drops of honey then apply it to the eyes
13	<b>Eye Sight Problem</b>				
i)	<i>Phyllanthus emblica</i> , <i>Terminalia bellarica</i> & <i>Terminalia chebula</i> [TRIPHALA]	Amla (English),Thannikka (Malayalam)& kadukka(Malayalam)	Phyllanthaceae and Combretaceae	Fruits.	14.58 g of thriphala is added to water / jaggery / curd and have it orally
ii)	<i>Allium sativum</i>	Garlic(English)	Amarilladaceae (Lilliacae)	bulb	The garlic is made to paste and make as a kizhi, squeeze it and add 3 to 4 drops of extraction in to the eyes.
14	<b>Liver Disease</b>				

i)	<i>Phyllanthus amarus</i>	Keezhar nelli (Malayalam)	Euphorbaceae	Whole plant	Grind the <i>Phyllanthus amarus</i> in milk and have it orally.
ii)	<i>Coscinimum fenestratum</i>	Maramanjil (Malayalam)	Menispermaceae	Whole plant	3g of the plant is powdered and have it orally daily (3g each).
15	<b>Food Poison</b>				
i)	<i>Azadirachta indica</i> & <i>Curcuma longa</i>	Neem(English) / Veppu(Malayalam) & turmeric (English) / Manjal(Malayalam)	Miliaceae and Zngiberaceae	Leaves, rhizome	Neem leaves and turmeric are grind together and have it orally in the form of balls.
16	<b>Spider Poison (bite)</b>				
i)	<i>Ocimum sanctum</i> & <i>Curcuma longa</i>	Thulsi(Malayalam) & Manjal(Malayalam)/ turmeric (English)	Lamiaceae & Zygiberaceae	Leaves and rhizome	Grind the turmeric in thulsi juice and have it orally as well as apply it o the affected area.
ii)	<i>Indigofera tinctoria</i>	Neela amari (Malayalam)	Caesalpinaceae (Fabaceae)	Roots	The roots of <i>Indigofera</i> are grind with milk and have it orally. The leaves are grind with rice water and apply it on the infected area.
17	<b>Kidney Stone</b>				
i)	<i>Aerva lanata</i>	Cheroola(Malayalam)	Amaranthaceae	Whole plant	Boil the water with <i>Aerva lanata</i> and drink it daily morning.
ii)	<i>Tinospora cordifoila</i>	Chittamruth (Malayalam)	Menispermaceae	Stem	Remove the bark and fibers of <i>Tinospora</i> and make a decoction with water and have it orally with honey about 15 days continuously.
18	<b>Piles</b>				
i)	<i>Cyathula prostrata</i>	Cherukadaladi (Malayalam)	Amaranthaceae	Whole plant	Grind the <i>Cyathula prostrata</i> in rice water and drink it.
ii)	<i>Allium cepa</i> <i>Mimosa pudica</i>	Onion(English) Thottavadi (Malayalam)	Liliaceae Mimosaceae	Bulb Whole plant	Cut the onion in to small pieces and boil it with milk and drink it. Take the whole plant and remove the flower then make a decoction of it or put the plant in kanji and boil it, have it orally once in a day for a week.
iii)	<i>Azadirachta indica</i>	Neem (English)	Miliaceae	Seeds	The seeds of Neem are grind with water and make small balls. These balls then mix with jiggery and have it orally for a week continuously.
19	<b>Allergy</b>				
i)	<i>Cocos nucifera</i> & <i>Ocimum sanctum</i>	Thengu (Malayalam) & thulasi( Malayalam)	Arecaceae & Lamiaceae	Tender coconut & thulsi leaves	Take the juice of Krishna thulsi about an owns and mix it in the tender coconut water and have it orally once in a day about 1 week.
ii)	<i>Curcuma longa</i> & <i>Murraya koenigii</i>	Turmeric (English) & kariveppila(Malayalam)	Zyngiberaceae & Rutaceae	Rhizome & leaves	Equal amount of curry leaves and turmeric are grind together, have it orally for a month during the morning.
iii)	<i>Citrus limon</i>	Lemon(English)/ Cherunarakam (Malayalam)	Rutaceae	Fruit	Squeeze the lemon and take the juice with out water/salt/sugar.
iv)	<i>Terminalia bellarica</i>	Thannikka(Malayalam)	Combritaceae	Pod	Take a bath with the water which is boiled with pods of Thannikka.
v)	<i>Cocos nucifera</i>	Thengu(Malayalam)	Arecaceae	Coconut milk	Apply the coconut milk over the affected area.
20	<b>Joint Pain</b>				
i)	<i>Salacia fruticosa</i> & <i>Terminalia chebula</i>	Eakanayakam (Malayalam) & Kaduka(Malayalam)	Celastraceae Combratecae	fruits	Grinded mixture of Eakanayakam and kadukka with butter milk, apply it over the affected area.
ii)	<i>Azadirachta indica</i> & <i>Calotropis gigantea</i>	Neem (English) / Veppu(English) & Erikku( Malayalam)	Miliaceae & Asclepiadaceae	Bark & Neem oil	Bark of Erikku boil with Neem Oil & apply over the joints.
iii)	<i>Hibiscus- rosa chinensis</i> & <i>Santalum album</i>	Chembarathi(Malayalam) & chandanam (Malayalam)/ Sandel(English)	Malvaceae & Santalaceae	Roots & Stem	Apply the grinded paste of white Hibiscus root and sandel over it.
iv)	<i>Resinus</i>	Avanakku(Malayalam)/ Caster	Euphorbiaceae	Leaves	Tie the heated caster leaves in the joints.

	<i>communis</i>	(English)			
v)	<i>Coriandrum sativum</i>	Coriander (English)/ kothamalli(Malayalam)	Apiaceae	Seeds	The coriander powder is heated in cressam oil and apply it over the affected area.(this mixture should have a mild heat).
21	<b>Scorpion poison</b>				
i)	<i>Piper betle</i>	Vettila (Malayalam)/ Betle(English)	Piperaceae	Leaves	Apply the grinded mixture of rock salt and beetle.
22	<b>Rheumatism</b>				
i)	<i>Sida cordifolia</i>	Anakkurunthotti (Malayalam)	Malvaceae	Roots	Make a milk decoction with Sida root, have it continuously upto 3-4 times per day.
23	<b>Bronchitis</b>				
i)	<i>Adhatoda zeylanica</i>	(Adalotakam)	Acanthaceae	Leaf	Leaf powder mixed with one and administered or leaf grind and mix with egg roasted and eaten.
24	<b>Worm Trouble</b>				
i)	<i>Leucas asperal</i>	Thumba)	Lamiaceae	Whole plant	Leaf Powder mixed with one and administered or leaf grind and mix with egg roasted and eaten.
25	<b>Hair growth</b>				
i)	<i>Lawsonia inermis</i> L.	(Mylanchi)	Lytheraceae	Leaf and flower	Prepare oil with leaf and flower and use to prevent falling of hair flower grind with water and drink twice a day.
27	<b>Eye injury</b>				
i)	<i>Tabernaemontana divaricata</i> (L) R.BR	Nanthya vattum	Aocynaceae		Flower is kept in water for 12hours and then flower juice is applied on the eye. Tooth ace-chewing the root.
28	<b>Renal stone</b>				
i)	<i>Scoparia dulcis</i> L.	Kallurucky	Scorphularaceae	Whole plant	Milk extract of whole plan drink early in the morning
29	<b>Wounds</b>				
i)	<i>Momosa pudica</i> L.	Thottavaty	Momosaceae	Leaf	Leaf grind and apply on wounds and cuts. Dysentery-leaf ex-tract with butter milk and drink.
30	<b>Jaundice</b>				
i)	<i>Phyllanthus amarus</i> L.	Kizhukanelli	Euphorbiaceae	Whole plant	Plant is ground and mixed with milk and drink early in the morning.
31	<b>Conjunctivitis</b>				
i)	<i>Mussanda glabrata hutch</i>	Vellia /ammakarumbi	Rubiaceae	Bark	the inner bark of the stem crushed and ground with cuminum cyminum and the juice is applied on the eye.
32	<b>Skin diseases</b>				
i)	<i>Cassia alata</i> l.	thakara)	Cesalpiniaceae	Leaf	Skin diseases-leaf grind wit curd milk and apply on the diseases part.
ii)	<i>Centella asiatica</i> (L)	(kudangal)	Apiaceae	Leaf	Leaf used to prepare oil and apply on the affected portion or Leaf grind with turmeric and apply memory power – 2 to 5 leaves to be eaten a early in the morning ulcer-prepare curry and use.