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Medicinal Uses and High Performance Thin Layer Chromatography of Ethnomedicinal Plant *Anisomeles indica* (L.)

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Abstract
Anisomeles indica (L) is a wild plant of family Lamiaceae. Commonly known as "Gopoli.The plant is used traditionally as an analgesic, antiinflammatory in skinproblems and also in Snakebites.
Medicinally it has been proven to possess variouspharmacological activities like antioxidant, antimicrobial. It is a wild, evergreen, perennial woody shrub growing up to 1.5 meters in height. It was found in PDKV agriculture farm and Gorewada forest.Stem is erect; Leaves are simple, acute apes, crenate margin asymmetric base, reticulate venation and hairy to softly pubescent shape. Taste is slightly astringent with characteristic odor. Aerial parts of the plant are valued as stimulant, expectorant, diaphoretic and insecticide. Leaves are considered useful in chronic rheumatism, psoriasis and other chronic skin eruption.Bruised leaves are applied locally in snake bites. Today, the field of Ethnobotany requires variety of skills, because it is the study of relationship-between-plants-and people.
Further studies reveal the presence of various phytochemical constituents mainly,alkaloids,tanins,saponins,carete donids and polyuronids and chemical constituent like Tetracosapentaene,2,6,10,15,19,23-hexamethyl,22-Stigmasten-3-one.These study reveals that *Anisomelis indica* is a source of medicinally active compounds and have various pharmacological effects,hence,this drug encourage finding,its new therapeutic uses.
KEYWORDS: *Anisomeles indica*, Lamiaceae, HPTLC,Ethnobotany

Figure 1 : View of *Anisomeles indica* plant.

,**Introduction:**

The plant *Anisomeles indica* commonly known as "Gopoli" belongs to the family Lamiaceae and is an ethonobotanically important medicinal plant. Almost all parts of this plant are being used in traditional medicines to treat various diseases. Medicinally it has beenproven to possess vari ous pharmacological activities like antioxidan t, antimicrobial,etc; our knowledge of the intimate relationship between early man and plants has come to us mainly through tradition (Chatterjee*et al;* 1997).***Anisomeles indica*** (Lamiaceae) is a camphor-scented perennial woody shrub. It is found growing wild along borders of settled areas at low and medium altitudes. It is used in folk medicine in the treatment of diverse conditions such as inflammatory skin diseases, liver protection, intestinal infections, abdominal pain and immune system deficiencies. Aerial parts of the plant are valued as stimulant, expectorant, diaphoretic and insecticide. Leaves are considered useful in chronic rheumatism, psoriasis and other chronic skin eruption.Bruished leaves are applied locally in snake bites (Chopra *et al*; 1956),(Kirtikar&Basu; 1999).As per world Health organization (WHO) estimates almost 80% of the population of developing countries relies on traditional medicine mostly plant drugs for their primary health care needs. Ethnomedicinal plants have been identified as one of the thrust area by the Ministry and different programmes have been initiated for conservationof medicinal plants found in forest and protected areas as well as cultivation of these plants in the degraded forest areas.Usuallythe dried parts of the medicinal plant leaves, flower, fruit, seed, stem, wood, bark, roots, and whole plant etc. are used as raw materials for the production, traditional remedies of Ayurveda, Siddha, Unani, Homeopathy and other system of medicine, including the folk, ethno or tribal medicine.

Vernacular Names

Hindi-Kala bhangra, Gobara

Marathi-Gopoli
Konkani-Gopoli
Telgu-Adabeera
Kannada- Mangamarisoppu
Begali-Goburu
Indonesia-Javanese
Philippines-Kabling parang
Thailand-Komko huai

Taxonomical Classification

Kingdom - Plantae
Sub-Division-Angiospermae
Class-Dicotyledonae
Sub-Class-Gamopetalae
Series-Bricarpellatae
Order-Lamiales
Family-Lamiaceae(Labiatae)
Genus -***Anisomeles***
Species- ***indica***

Botanical Description

The morphological characteristics of the leaves of *Anisomeles-indica* arewith acute apex, crenate margin, asymmetric base,reticulate venation and hairy tosoftly pubescen.Leaves surface thick, with dimension 3.8-10 x 5.5-6 cm.Color is green to yellowish green;taste is slightly astringent with characters odor(Nadkarni,2000).Stem is erect, brown to pinkish black, acutely quadrangular,softly pubescent; internodes 7 to 10 cm long; pith white, powdery & fibrous.The inflorescence is a terminal spike, accompanied by morethan 2 lateral spikes. The sepal measures 6 mm × 6.5 mm.long with the style about 9mm long.The fruit is 9 -10 mm long. Stamens four, didynamous epipetalous and alternate with corolla lobes.Gynoecium bicarperally syncarpous, ovary bilocular the style gynobasic. Fruits nutlets bearing ellipsoid and compressed seed. Theplacentationaxial.

Methodology:

The present work based on various sites survey made in Gorewada and PDKV forest Nagpur region. The plant was collected and identification and authentification was done at research laboratory of Institute of Science, Nagpur. Ethnomedicinal uses medicinal properties of the plant was collected during field visitsfrom the local people. Leaves of the plants were collected during field trips.

Preliminary screening - The shade dried leaf material was powdered using mortar and pestle.

Phytochemical Analysis –Successive solvent extraction: about 50 gm of the dry powder of the leaves were successively was extracted with the different solvents in a "Solvent Extractor" with the help ofSoxhletApparatus. Detection of Alkaloids, tannins,Carotenoids, saponins and polyuronoids was carried out.

B) HPTLC analysis of the leaves of the plant*Anisomeles indica* (L.) was carried out in the authenticated lab from Nagpur.

Observations:

A) Microscopic Description

T.S. shows it is a dorsiventral leaf. In T.S., the upper and,lower epidermises comprise uniseriate, spherical to polygonal,cells. Both epidermises are covered with cuticle. The cuticle, thickness is approximately the same on both epidermises in*Anisomeles indica*. There are covering and non coveringtrichomes on both epidermises. Numerous caryophyllaceous or diacytic stomatas are present in epidermises. Mesophyll is,traversed by large number of veins and is represented bygroups of few spiral vessels.*Anisomeles indica* midrib shows concaveconvex outline inthe basal and middle region which becomes more or lessplano convex in the apical region. 4,6 layered collenchymas,located below both epidermises, vascular bundles are, surrounded by a parenchymatous bundle sheath. Palisade parenchyma are triseriate under the upper epidermis.Collateral vascular bundle is prominent, occupying the,central portion of the midrib. Xylem vessels are covered byxylem fibres.

Fig: 2 T.S. Leaf Of *Anisomeles indica*

B) Phytochemical Analysis of A*nisomeles indica*

Preliminary chemical examination of *Anisomeles indica* reveled presence of alkaloid in leaves of plant. Alkaloid were found inHigh concentration ,while tannin shows moderate concentration and saponins and polyuronoids shows negative test,Carotenoids shows low concentration.

Sr.No	Test	High concentration	Moderate concentration	Low Concentration
1	Alkaloids	(+++)		
2	Tannin		(++)	
3	Saponins			Negative test
4	Polyuronoids			Negative test
5	Carotenoids			(+)

Table No.1

Table No. 2: Resolution factor (Rf.) values of HPTLC for Alkaloids in Leaves of plant

Sr.No	Name of the species	Part of the plant used	Resolution factor (Rf.) Value
1	***Anisomeles indica***	Leaves	0.50

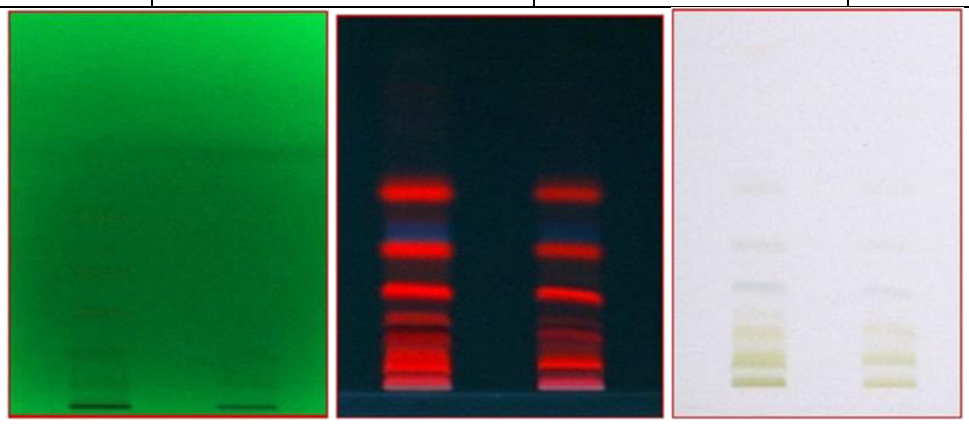
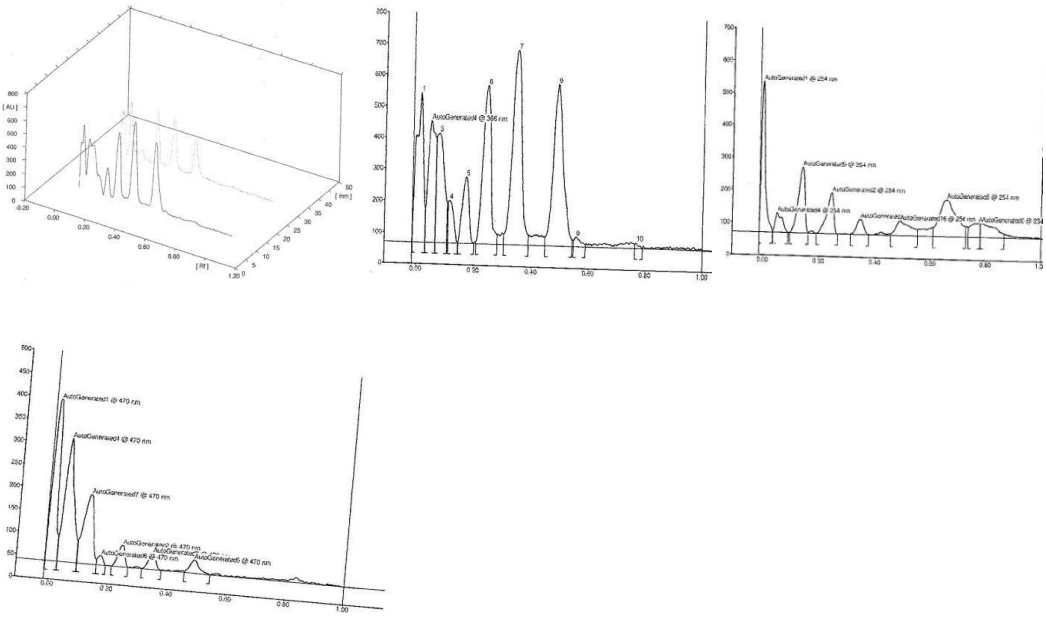


Fig. No. - 3: High Performance Thin layer chromatography of *Anisomeles indica* Plant

Fig : 4 Graphical representation of HPTLC Analysis



Medicinal uses of *Anisomeles indica*

The plant issued in folk medicine as a cure in gastric dysfunction, inflammatory disorder,hypertension and essential oil present in herb issued in uterine infection (Kirtikar,*et.al.* 1999,Anonymous,2003).*A indic a* Linn. is reported to be analgesic,antiinflammatory activity and alsoact s as natural herbicide in wheat fields.The plant is used traditionally as an analgesic, antiinfla mmatory in skin problems and also in snakebites.There is needto develop alternati ve antibioticdrugsfrom plants.One approach is toscreen local medicinal plants,which represent rich source of novel antimicrobial agents.

The dried or fresh materialis used as a wash for external infections,eczema,and skin problems.The plant is to act as mosquito-repellent.

Conclusion:

The present investigation was carried out on *Anisomeles indica* plant of Lamiaceae family to study the presence of medicinally active phytochemicals and chemical constituent like Tetracosapentaene,2,6,10,15,19,23-hexamethyl,22-Stigmasten-3-onein the leaves. The chemical composition of the essential compounds from the leaves *Anisomeles indica* of collected plant from Gorewada forest and PDKV forest which experienced different climatic and geographic circumstances, were determined by HPTLC. The present investigations concluded that the leaf *Anisomeles indica* of contains ethno medicinal properties. These properties are widely used in Ayurvedic traditional medicines. This study concludes and recommends further advanced study of these plants, so that it will help in preserving our traditional knowledge. The present HPTLC screening may serve as pavements for the researcher to select a group of plants having similar chemical constituents of particular class to isolate biologically active principles and future studies on family Lamiaceae.

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