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PRELIMINARY PHYTOCHEMICAL SCREENING OF VARIOUS EXTRACTS OF *ANISOMELES MALABARICA*.

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Abstract:
Traditional systems thus contain beliefs and practices in order to avoid, prevent, or avert ailments, which constitute traditional preventive medicine. The use of medicinal herbs and herbal medicine is an age-old tradition and the recent progress in modern therapeutics has stimulated the use of natural product worldwide for diverse ailments and diseases. The educated public and health care professionals have enormous interests in the medicinal uses of herbs, but there is a great deal of confusion about their identification, effectiveness, therapeutic dosage, toxicity, standardization, and regulation. According to WHO, traditional medicine is popular in all regions of the world and its use is rapidly expanding even in developed countries. Medicinal plants in the prevention and treatment of chronic diseases is an attempt to summarize the current knowledge of promising traditional medicines and their phytophores to compounds tested against diverse chronic diseases. The therapeutic properties and structure activity relationship of some important and potentially useful phytoformulations are addressed with a focus on how these age-old wisdom can led to the development of useful therapeutics lead for preclinical or clinical evaluation.

Key words: *Phytoformulations, Medicinal plants, Anisomeles malabarica, Cardiac glycosides, Flavanoids.*

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INTRODUCTION

Anisomeles malabarica (L.) R. Br. is perhaps the most useful traditional medicinal plant. It is a highly aromatic plant belonging to the family Lamiaceae (Labiatae). *Anisomeles malabarica* is a species of herbaceous plant native to tropical and subtropical regions. Mosquitoes act as a vector for most of the life threatening diseases like malaria, yellow fever, dengue fever, filariasis, encephalitis. Part of the present study was aimed to evaluate the larvicidal and pupicidal activities of crude methanol extract of *Anisomeles malabarica*. The extract was assayed for their toxicity against the important vector mosquitoes Anopheles stephensi [1]. The plant extract showed larvicidal effects after 24 h of exposure; however, the highest larval and pupal mortality was found in the methanol extract of *Anisomeles malabarica* against the first to fourth instars larvae and pupae [2]. This result suggested that the plant extract have the potential to be used as an ideal eco-friendly approach for the control of mosquito vector. This paper gives a bird's eye view mainly on the biological activities, pharmacological actions, and plausible medicinal applications of *Anisomeles malabarica*. Different aspects of *Anisomeles malabarica* medicinal values are briefly demonstrated, such as potential anti-allergic, anti-anaphylactic, anti-bacterial, anticancer, anti-carcinogenic, anti-inflammatory, antiepileptic potential, antifertility, anti-pyretic activity and antispasmodic [3]. Therefore, we aimed to explore the presence of phytochemical in various extracts of *Anisomeles malabarica* were undertaken.

MATERIALS AND METHODS:

Collection of samples

The medicinal plants used for the experiment were aerial parts of *Anisomeles malabarica.*

Preparation of extracts

500 grams of dried leaf powder of *Anisomeles malabarica* was packed in separate round bottom flask for sample extraction using different solvents namely ethanol, methanol, chloroform, ethyl acetate and water. The extraction was conducted with 750 ml of each solvent for a period of 24 hours. At the end of the extraction the respective solvents were concentrated under reduced pressure and the crude extracts were stored in refrigerator.

Phytochemical analysis

The extracts prepared were analyzed for the presence of alkaloids, saponins, tannins, steroids, flavanoids, anthraquinones, cardiac glycosides and reducing sugars based on the protocols available in the literature [4-11].

Test for alkaloids

The extract of the crude dry powder of each solvent was evaporated to dryness in boiling water bath. The residues were dissolved in 2 N Hydrocholoric acid. The mixture was filtered and the filtrate was divided into three equal portions. One portion was treated with a few drops of Mayer's reagent; one portion was treated with equal amount of Dragondorff's reagent and the third portion was treated with equal amount of Wagner's reagent respectively. The creamish precipitate, the orange precipitate and brown precipitate indicated the presence of respective alkaloids.

Test for saponins

About 0.5 g of the plant extract was shaken with water in a test tube and then heated to boil. Frothing was observed which was taken as a preliminary evidence for the presence of the saponins.

Test for tannins

About 0.5 g of extract was added was in 10 ml of water in a test tube and filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or blue-black coloration.

Test for steroids

2 ml of acetic anhydride was added to 0.5 g of methanol extract of each sample with 2 ml sulphuric acid. The colour changed from violet to blue or green in some samples indicating the presence of steroids.

Test for flavanoids

2 ml of extract solution was treated with 1.5 ml of 50% methanol solution. The solution was warmed and metal magnesium was added. To this solution few drops of conc. Hydrochloric acid was added and the red colour was observed for flavanoids and orange colour for flavanoids.

Test for anthraquinones

About 0.5 g of extract was taken in a dry test tube and 5 ml of chloroform was added and shaken for 5 min. The extract was filtered and the filtrate shaken with equal volume of 10% of ammonia solution. A pink violet or red colour in the ammonical layer indicates the presence of anthraquinones.

Test for cardiac glycosides

0.2 g of extract was dissolved in 1 ml of glacial acetic acid containing 1 drop of ferric chloride solution. This was then under layered with 1ml of concentrated sulphuric acid. A brown ring obtained at the interface indicated the presence of a deoxy sugar characteristic of cardic glycosoids.

Test for Proteins
To 2ml of protein solution 1ml of 40% NaOH solution and 1 to 2 drops of 1% CuSO4 solution was added. A violet color indicated the presence of peptide linkage of the molecule.

Test for Amino Acids
To 2ml of sample was added to 2ml of Ninhydrin reagent and kept in water bath for 20 minutes. Appearance of purple color indicated the presence of amino acids in the sample.

Test for Tri-Terpenoids
5ml of each extract was added to 2ml of chloroform and 3ml of con. H2SO4 to form a monolayer of reddish brown coloration of the interface was showed to form positive result for the terpenoids.

Test for Triple Sugar
To 2 ml of extract 2drops of Molisch's reagent was added and shaken well. 2ml of con. of con. H2SO4 was added on the sides of the test tube. A reddish violet ring appeared at the junction of two layers immediately indicated the presence of carbohydrates.

Test for Polyphenols
To 2ml of sample was added to 2ml of ferric chloride solution and kept in the room temperature. Appearance of violet color indicated the presence of phenolic compounds in the sample.

RESULTS AND DISCUSSION:

Table 1: Preliminary phytochemical constituents of *Anisomeles malabarica.*

S.NO	Phytochemicals	Chloroform Extract	Aqueous extract	Hexane Extract	Ethyl acetate extract	Acetone extract	Butanol Extract
1	Flavanoids	++	++	++	++	++	++
2	Alkaloids	++	++	++	++	++	++
3	Saponins	--	++	--	--	--	--
4	Tannins	--	++	++	++	--	++
5	Amino acids	--	--	--	--	--	--
6	Proteins	--	--	--	--	--	--
7	Tri-Terpenoids	++	++	++	++	--	--
8	Reducing sugars	--	++	--	--	--	--
9	Cardiac glycosides	++	--	++	++	++	++
10	Anthroquinones	--	--	--	--	--	--
11	Steroids	--	--	--	--	--	--
12	Poly phenols	--	--	--	--	++	--

"++" - Positive, "--" - Negative.

Bacterial pathogens have evolved numerous defense mechanisms against antimicrobial agents; hence resistance to old and newly produced drugs is on the rise. The phenomenon of antibiotic resistance exhibited by the pathogenic microorganisms has led to the need for screening of several medicinal plants for their potential antimicrobial activity [12]. Chemical compounds from the leaves of *A. malabarica* have a wide spectrum of antibacterial action against Gram-negative and Gram-positive pathogenic bacteria such as *Escherichia coli, Klebsiella pneumoniae, Staphylococcus aureus, Vibrio cholera, pseudomonas aeruginosa, and Proteus mirabilis* [13]. In the chloroform extract of aerial parts of *Anisomeles malabarica* contains the various phytochemicals such as flavanoids, alkaloids, tri-terpenoids, cardiac glycosides and the aqueous extract of this plants contains flavanoids, alkaloids, saponins, tannins, triple-sugars. The aerial parts of *Anisomeles malabarica* in n-hexane possess flavanoids, alkaloids, triterpenoids, tannins, and cardiac glycosides.The ethyl acetate extract , acetone extract and butanol extract *Anisomeles malabarica* contains flavanoids, alkaloids, tannins, and cardiac glycosides were as the ethyl acetate extract of this plant contains tri-terpenoids. The acetone extract of *Anisomeles malabarica* shows the presence of polyphenolic compounds and the remaining extract were shown negative results. Our results clearly indicates that the presence of phytochemicals in various extract of *Anisomeles malabarica*.

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