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A Review on Pharmacological Studies on the Phyla Nodiflora'plant

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ABSTRACT :-
Phyla Nodiflora Linn. (Verbenaceae) is a small creeping herb, commonly known as Jalpapli. The plant is used to cure many problems. It is used for pain in knee joints, for lack of bowel movement, used in ulcers and boils, in swollen cervical glands. It is also used in gonorrhea. The antibacterial activity of plant has also been traced. The plant has showed antibacterial activity against bacteria such as E. coli, Pseudomonas, Staphylococcus. Phyla has been the source of traditional medicines against diseases like liver disorders, dandruff control, indigestion in children etc. In this paper the plant has been reviewed for its phytochemistry, pharmacological studies and antimicrobial activity
KEYWORDS:-: Phyla Nodiflora verbenaceae, phytochemicals, flavonoids, sterols, pharmacological.

I. INTRODUCTION :

-plant are an essential component of the universe. After various observations and experimentations many medicinal plants were identified as source of important medicine.(1)
India is rich in its forest wealth. The medicinal plants have contributed lot in the development of the Indian system of medicine and India is a store house of genetic diversity of medicinal plant with the increasing acceptance of traditional medicine as an alternative form of health care. The screening of the medicinal plants for active compounds is very important. Traditional medicine based on plants has played a key role in the health care system of many countries little- India, China etc. 3

Plant Name -. Phyla Nodiflora Linn
Local name -Jalpapli
Vernacular names:-
English. - Lippa , Frog Fruit
Philippines. - Busbus
Thailand. - Yaa Riet Pla
Hindi. - bakkan Jalpapli
Sanskrit - Vasir Vasuka
Marathi. - Ratolia Vakkan

SYNONYMS :-. Lippa incisa. , Lippa Nodiflora, Lippa reptans ,
Kunth, Phyla incisa small.

CLASSIFICATION :-
Kingdom. - Plante
Division. - Magnoliophyta
Class. - Magoliopsida
Order. - Lamialas
Family. - Verbenaceae
Genus. - Phyla
Species. - Nodiflora

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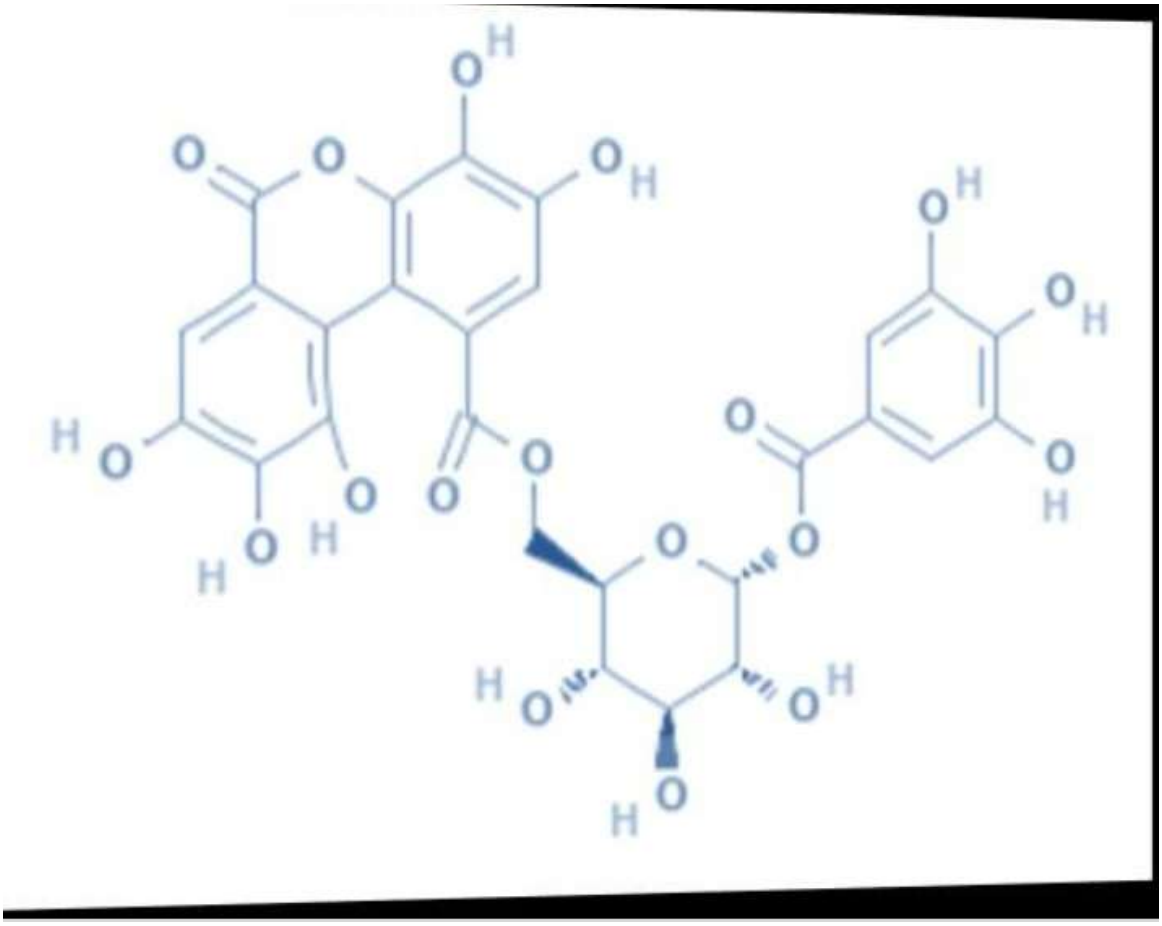

STRUCTURE

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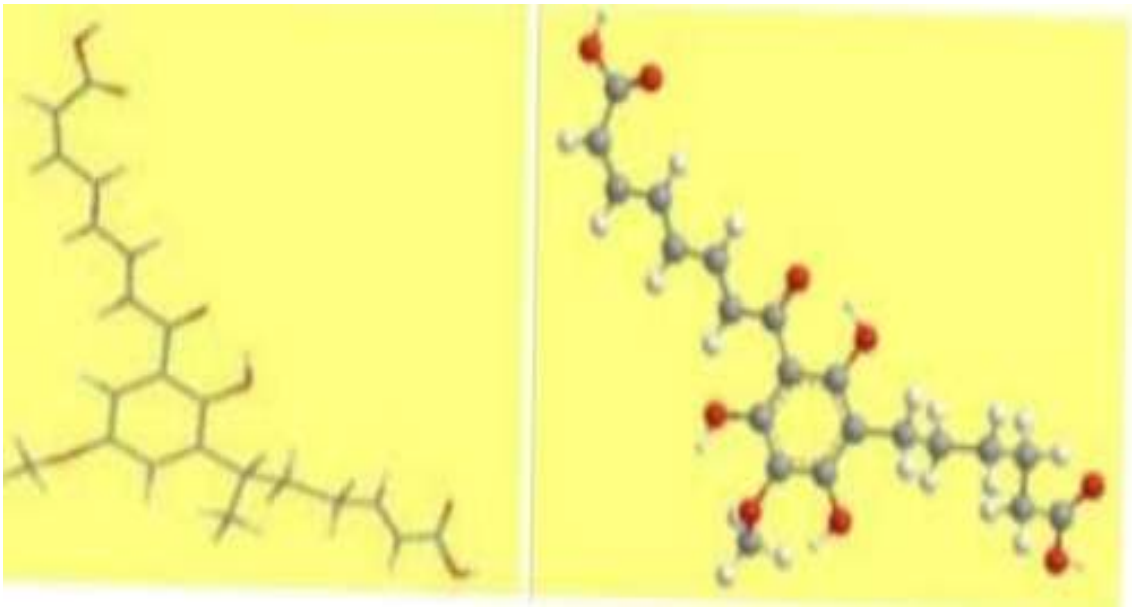

GEOGRAPHICAL SOURCES:-

It is distributed in India, Sri Lanka, Ceylon, Baluchistan, South and Central America and Tropical Africa. It is native of California.

In India, it is found in the warmer parts including A.P., Karnataka, Kerala, and Maharashtra, some parts of Rajasthan, Tamil Nadu, U.P. and W.B. It is common in wet places along bunds or irrigation canal edges and sliver banks

CHEMICAL CONSTITUENTS :-

The plant is rich in many important medicinal useful compounds. The plant contains a variety of constituents such as triterpenoids, flavonoids, phenols, steroids, and many others. Among these flavonoids were the most commonly found. Nodifloretin (3)Many compounds were isolated from different parts of Lippia nodiflora included: flavonoids [nodifloretin (or 6-hydroxy-3'-methoxyluteolin or batatifolin), 6-hydroxyluteolin-7-O-apioside, luteolin-7-O-glucoside, eupafolin, hispidulin-7-sulfate, hispidulin-7,4'-disulfate, jaceosidin-7,4'-disulfate, nepetin-3',4'-disulfate, nodifloretin-6,7-disulfate, 6-hydroxyluteolin-6,7-disulfate, nodifloretin-7-sulfate, 6-hydroxy-luteolin-6-sulfate, 6-hydroxyluteolin-7-sulfate, jaceosidin-7-sulfate, nepetin-7-sulfate, hispidulin-4'-sulfate, hispidulin, jaceosidin, lippiacian, dimethoxy flavone), ganzalitosin I (or 5-hydroxy-3',4',7-trimethoxy flavones), 3,7,4',5'-tetrahydroxy-3'-methoxyflavone, 4'-hydroxywogonin, onopordin, cirsiliol, larycitrin and 5,7,8,4'-tetrahydroxy-3'-methoxyflavone](44-53); phytosterol (β-sitosterol glucoside, stigmasterol glucoside, β-sitosterol, 4', 5'-dimethoxybenzoloxystigmasterol and stigmasterol)(52-54); triterpene (3β-19α-dihydroxy-urs-1,20-(30)- diene, ursolic acid, pomolic acid and Lippiacin)(54-55); quinol [halleridone (or benzofuranone renglyolone) and hallerone](46, 55); iridoid (loganin and catalpol)(24); steroids [4', 5'-dimethoxybenzoloxystigmasterol and betasitosterol](48, 55); phenylethanoid glycosides [arenarioside, acteoside, verbascoside and 2'-Oacetylechinacoside](50, 56-57); resin (α-copaene, β-bisabolene)(58); other compounds such as nodifloridin A, nodifloridin B, nodiflorin A, nodiflorin B, cornoside, α-ethyl-galactose, 7-arabinose and 4'-rhamnoside were also isolated from the plant(45, 54, 59)

PHARMACOLOGICAL ACTION:-

ANTIHYPERLIPIDEMIC EFFECT:γ-sitosterol showed antihyperlipidemic activity as evidenced by significant decrease in serum total cholesterol, triglycerides and very low density lipoprotein-cholesterol levels coupled with elevation of high density lipoprotein-cholesterol levels in streptozotocin (STZ) induced diabetic rats. A significant decrease in the activities of alanine aminotransaminase, aspartate aminotransaminase, alkaline phosphatase and acid phosphatase in γ-sitosterol treated rats were recorded compared to diabetic control rats which indicated its protective role against liver damage(90)

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EFFECT ON BLOOD CLOTTING:-

Ethanolic extract of Lippia nodiflora significantly hasten blood clotting when used in a dose of 100 mg/kg ($p< 0.05$) and 200 mg /kg ($p< 0.01$). The effect of the ethanolic extract appeared dose dependent. However, aqueous extract didn't exerted significant effects on blood clotting time in both doses(73)

ANTICANCER EFFECT -The anticancer effect of the methanol and ethyl acetate extract of leaf and stem of Phyla nodiflora was studied in MCF7 cells. The proliferation assay was performed using 3-(4,5- dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) method. DNA fragmentation caused by apoptosis event was evaluated through DNA extraction. MCF7 cells were inhibited by all the extracts with IC50 ranging from 90-120 µg/ml. DNA extracted from treated cells showed the formation of DNA laddering. The results showed that Phyla nodiflora inhibited the growth of breast cancer cells through apoptosis induction(88)

ANTIDIARRHOEAL ACTIVITY: The anti-diarrhoeal activity of Lippia nodiflora leaves aqueous extract was studied in rats using castor oil-induced diarrhoea model. The extract (100 mg/kg) significantly ($p < 0.001$) protected against castor oilinduced diarrhoea and castor oil induced enteropooling(91)

HYPOTENSIVE EFFECT :The methanolic extract (500 mg/kg bw/ day for 14 days) of Lippia nodiflora caused significant decrease in the systolic pressure in DOCA-Salt hypertensive wister rats(83). The efficacy of chloroform, ethyl acetate, methanol and water extracts (500 mg/kg, orally) of whole plant Lippia nodiflora was studied in uninephrectomized DOCA-salt hypertensive rats. Among all these extracts, methanolic extract reduced the systolic blood pressure significantly(84)

ANTIMICROBIAL ACTIVITY: The antimicrobial activities on phyla nodiflora was also seen 27 The phytochemical and antimicrobial studies were also done.28 The Indian medicinal plants were screened for their anti microbial activity.29

ANTIDANDRUFF ACTIVITY:The antidandruff activity of ethanolic extract and isolated compound of Eclipta alba and Lippia nodiflora was studied using the disc diffusion assay. Suspension containing 5 × 106 CFU/ml of dandruff causing organism (Malassezia furfur) was swabbed on the surface of the sterile SDA plates using a sterile cotton swab. Sterile filter paper discs impregnated with the isolated compound doses (25 µg/ml and 50 µg/ml) and ethanolic extract (250 µg/ml and 500 µg/ml) per disc was aseptically placed over the seeded SDA plates. The results showed that the Malassezia furfur was sensitive to all the concentrations of ethanolic extract and isolated compound of Lippia nodiflora (96)

II. CONCLUSION

Phyla nodiflora is widespread all over the world. It has been used by the different tribes as traditional medicines. Certain compound has been isolated. However more investigations are to be done on the biological activity and for the action of more biologically active compounds. Presence of large number of phytochemicals indicates towards its future perspective to use it as an indigenous medicine in the pharmaceutical industry

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