

Antibacterial Activity of Ethanolic Extraction and Chemical Test for *Mollugo Nudicaulis*

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ABSTRACT

Mollugonudicaulis (family- molluginaceae) is a widely used medicinal plant; especially in south India. This plant is mostly used and popular in various Indigenous System of Medicine like Ayurveda, Siddha and Unani. Mollugonudicaulis is a wonder and very useful plant which has the potential to cure various types of diseases or disorder. Composition of Mollugonudicaulis of Family Molluginaceae contains chemical components presence of alkaloids, steroids, flavonoids and reducing sugar, saponins, and terpenoids are absent. In this article consist on the different solvent such as ethanol to perform plant extract and its chemical test. One of the most important is that it acts as an antibacterial. It's described as a better microbial growth inhibitor. These whole plant is used to the anticancer, antipyretic, and laxative etc.,

KEYWORDS : Mollugonudicaulis, Ethanol.

I. INTRODUCTION

Medicinal plants have been used to treat diseases for ages in a variety of indigenous medication systems. In modern society, natural products have been a huge success. The use of secondary metabolites from plants and microorganisms has contributed in the doubling of human life in the twentieth century. Mollugonudicaulis belongs to the Molluginaceae family, and it is a member of the Mollugonudicaulis 1 am species. The word nudicaulis means "naked" or "leafless" stem. Nudicaulis is a short herb with simple, alternating leaves grouped in a basal rosette that can reach a height of 25 cm

The Inflorescences are loose cymes, erect, 10 to 20 cm high and much branched the flowers are small, greenish-white. The fruits are dehiscent

capsules the seeds are lenticular. The cotyledons are reduced, simple, opposite. The blade is smooth, oblong, 4mm long and 2 mm wide they are borne on a short petiole. The first leaf are simple, borne on a short stalk and alternately in a basal rosette the blade is spatula shaped, 15 to 20mm long, pubescent.

The apex is round and has a small mucro. The habit is an annual weed, it grows up to 20 cm height. The root is tap root system. The stem is a particular low and leafless. The leaves are simple and alternate, and arranged in a basal rosette 3 to 6cm long and 6 cm long and 1 to 2cm wide.

The blade is spatulate to oblanceolate in shape. The base is offset by a poorly differentiated petiole; the apex is round, sometimes mucronate. The margin is entire. Four or five lateral nerves are visible on the upper surface. Both sides are smooth and green. The inflorescence is a terminal loose cyme, divided into 2 or 3 branches and borne on a 5- 10 cm long stalk.

The flowers are small with a diameter of 5mm, composed of five greenish – white petals. The fruits are dehiscent 2-5 valved capsules, 2.5 mm high each capsule contain 15 to 25 seeds the capsules remain looked in the floral parts until the opening. The seeds are lenticular, 0.5 mm in diameter.

The surface is finely granular and black. The biology is annual plant, flowering from December to April. Multiplies by seeds. Seeds are dispersed by wind and water streams. The ecology is occurs in gardens, villages and distributed areas. It prefers shady and moist areas. It grows very well in loamy to sandy soil. The native to the tropics it distributed throughout tropical Africa and Asia. The KNP distribution is a naturalised weed a potential invader plant with the ecological impact controlled and pulling.

TRADITIONAL USES OF FOLK REMEDIES:

Mollugonudicaullis has been traditionally used for the treatment of the varies types of disorder, diseases.in india ,the whole plant is used as a mild laxative medicine ,also as stomachic, and antiseptic and emmenagogue.in china,it is made

into a soup to promote appetite, while a decoction of the roots is used to eye diseases.in thailand ,the entire plant is used an antipyrettic.in the solomon islands the whole plant is burnt to make a mosquito repellent .the leaves are eaten as a bitter pot herb in india.



PLANT CHARACTERISTICS:

Taxonomic classification:

Taxonomic classification	
Kingdom	Plantae
Phylum	Tracheriphyta
Class	Magnoliopsida
Order	Caryophyllales
Family	Molluginaceae
Genes	Paramolugothulin
Species	Mollugomudicaulis(Lam)

COMMON NAMES:

Naked –stem carpetweed

BOTANICAL MAME:

Mollugo Nudicaulis

SYNONYMS:

Lampetia Nudicaulis

HABITAT:

Nudicaulis: with a naked or leafless stem. The plant has a rosette at the surface of the soil the lamina is the spatulate. The top is rounded and has a small mucro. The are 15 to 20mm long and 10 mm wide. A weed in deciduous woodland, dry river beds, cultivated areas and road sides.it is

world wide distribution and distributed through out Africa, Madagascar, India and Asia

CHARACTERISTICS OF NAKED STEM CARPETWEED:

Naked- stem carpetweed is on annual herb up to 22cm tall. Leaves are all at the base, 1.5 to 6 cm long, 6 to 16mm broad, spoon shaped to inverted lance shaped hairless, narrowing into the stalk.

Flowers are borne in dichasial cymes, leafless stem slender, hairless, involucre bracts ovate-oblong, 1-2 mm long, rough. Flower-stalks are up to 1.4 cm long. Sepals are oblong, 2.5-3.0 mm long, mucronate, imbricate persistent.

Filaments are 1 mm long, persistent, anthers less than 1 mm long, sub-globose. Ovary sub-globose, 1.5 mm long. Stigmas 3, short, curved. Capsule as long as the sepals, sub-globose, dehiscent by 3 valves.

Seeds less than 1 mm, muricate, minutely strophiolate, black and shiny. Naked-Stem Carpetweed is found on sandy seashores in India, Pakistan and Tropical Africa.

II. METHODOLOGY:

Materials methods

COLLECTION OF PLANT MATERIAL:

The whole fresh plant of mollugo Nudicaulis were collected during September, 2021 from pennagaram, dharmapuri district, tamilnadu in

India. The leaves were picked and washed with under running water to remove the dust particle and dried the plant material for several days after the plant materials are grinded to powdered form.

AUTHENTICATION OF PLANT:

The plant material was authenticated by Department science, Sri vijayvidyalaya college of arts and science, Dharmapuri

Extraction:

The apparatus are first cleanly washed with acetone and dried after the powder form of plant material are been kept in a small bag and cleanly been closed no air been passed. The leaves of mollugo Nudicaulis are grinding fine powder using mechanical blender and passing through sieve. The extraction done by using solvents of ethanol for the 48 hrs. the dried extract obtained was stored in desiccator at -20°C until further it use.

ETHANOLIC EXTRACT:

The shade dried coarse powder of whole plant [50gm] was packed well in soxhlet apparatus and was subjected to continuous hot extraction with 250 ml of absolute ethanol for 24 hrs. The extract was distilled in vacuum under pressure in order to remove the solvent completely. It was dried and kept in a desiccator till experimentation. The obtained extract was weighed and % yield was calculated in terms of air dried crude powder material.

50gm powder of mollugo Nudicaulis was extracted with 250ml of ethanol



[by using soxhlet apparatus]

Solvent was evaporated under reduced pressure



45-c

Using rotary evaporator



The dried extract was obtained



Stored in desiccator at -20-c



PHYTOCHEMICAL TEST OF MOLLUGO NUDICAULSIS

The dry extract was used to phytochemical screening of compounds which include flavonoids alkaloids and other chemical constituents are tested.

Chemical constituents

Mayers's test	Few ml of filtrate +1-2 drops of mayer's reagent (along the side of test tube)	A creamy white /yellow precipitate Presence of alkaloid
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Wagner's test	Few ml filtrate 1-2 drops of wagner's reagent (along the side of test tube)	A reddish /brown precipitate presence of alkaloid
Alkaline reagent test	plant extract +10% ammonium hydroxide solution	An intense yellow colour, becomes colourless on addition of diluted acid (presence of alkaloids)
Lead acetate test	1ml plant extract + few drops of 10% lead acetate solution	A yellow precipitate (presence of flavonoids)
Ammonia test	Filtrate +5ml dil ammonia solution +con H ₂ so ₄	A yellow colour (presence of flavonoids)
Con H ₂ SO ₄	Plant extract + con H ₂ SO ₄	An orange colour (presence of flavonoids)
Benedict's test	0.5ml filtrate +0.5ml benedict's reagent+boiled for 2 min	Green/yellow or red colour.[presence of reducing sugar]

Antibacterial activity

Pseudomonas aeruginosa, *Proteus* sp, *Streptococcus* sp, and *Entrobactersp* are the microorganisms that were used in this investigation.

To test the antibacterial activity of MN's ethanolic leaf extract, the researchers used the agar disc diffusion method. The disc-assay was discovered to be a viable method that is simple, inexpensive, and repeatable[21].

The microbes were inoculated into 10 ml of nutritional broth and incubated on a rotary shaker (12 hrs at 37oc). In a petri plate with molten Muller Hinton agar media, 0.2 ml of inoculum was poured in.

The test substance (ethanolic extract of MN) was injected into the well at varying concentrations of 50, 100, 150, and 200 g/6 mm disc, and the plates were incubated at 37°C for 12 hours.



III. RESULT

Phytochemical screening

The phytochemical screening (Table.1) of the aqueous extract of MN indicated the presence of ,MN indicated the presence of Alkaloids, flavonoids, and reducing sugars, whereas saponins, and terpenoids are absent in aqueous extract.

The methanolic extract indicated the presence of alkaloids, steroids, flavonoids, reducing sugars and saponins, whereas terpenoids are absent.

The total phenolics content of the methanolic and aqueous leaf extract was 47.01 ± 0.8 and 46.4 ± 0.05 mg/100g of gallic acid equivalent of plant extract with reference to gallic acid standard curve ($y = 0.25x + 0.010$, $R^2 = 0.996$).
2 2

The total flavonoid content of the methanolic and aqueous leaf extract was 41.3 ± 0.04 and 36.2 ± 0.01 mg/100g of rutin equivalent of plant extract respectively.

IV. CONCLUSION

From the above mentioned result we can conclude all the properties of extract contains alkaloids, flavonoids, reducing sugar are presence and absence of saponins and the terpenoids . The ethanolic extraction of mollugonudicaulis similar to methanolic extraction but better performing to inhibition of bacterial growth

All the chemical tests are success when compared to methanolic extract and better result for ethanolic extract.

They are better result providing against of *Pseudomonas aeruginosa*, *Proteus* sp, *Streptococcus* sp, comparatively other than species

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