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Preliminary Phytochemical Evaluation of Plant Extracts in *Ipomoea Pes-Caprae* L.

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ABSTRACT: The ethno-medicine involves the use of different plant extracts or the bioactive constituents of vital importance in the health application at an affordable cost and study of such ethnomedicine keenly represents one of the best avenues in searching new economic plants for medicine. *Ipomoea pes-caprae* (Convolvulacea) is a valuable medicinal plant, distributed in the tropics and subtropics regions and uses folk and tribal medicines. Usually known as railroad vine and goat's-foot morning glory. The juice from the succulent leaves has been used as a first aid to treat jellyfish stings and also used in ritual baths to alleviate evil spells. The extract of the leaves have the astringent, diuretic and laxative properties. Leaves are used in rheumatism, and as stomachic and tonic. It has wide range of pharmacological activities life antioxidant, analgesic, anti-inflammatory, antispasmodic, anti-nociceptive, antihistaminic, insulogeni and hypoglycemic activities. In Reunion a root decocation is administered against fever and colic. The present investigation is carried out in *Ipomoea pes-caprae* plants collected from Samiyarpettai, Chidhambaram, Cuddalore district, Tamil nadu. Qualitative phytochemical analysis of the plants confirms the presence of various phytochemicals like alkaloids, flavonoids, tannins, saponins, terpenoids and steroids.

KEYWORDS: Phytochemical, Ethno-medicine, Goat's foot morning glory, Laxative properties.

I.INTRODUCTION

Ipomoea pes-caprae is a valuable medicinal plant, distributed in the tropics and subtropics regions and uses in folks and tribal medicines. It is also known as bayhops, beach morning glory or goat's foot is a common pan tropical creeping vine belonging to the family convolvulaceae. It grows on the upper parts of beaches and endures salted air. It is one of the most common and most widely distributed salt tolerant plants and provides one of the best known examples of oceanic dispersal. Its seeds float and rare unaffected by salt water.

Phytochemical screening of I. *pes-capra*e extracts has also revealed the presence of pharmacologically active components. Methanol extracts from leaves contain saponins and tannins [1]. The aqueous methanol extract of the aerial part contains steroids, terpenoids, alkaloids, flavonoids [2] and exceptionally, high phenolic compounds [3]. Both leaves and stem ethanol extracts contain alkaloids, saponins, tannins, anthraquinones and flavonoids [4]. Phytochemicals are secondary metabolites, which exhibit protective or disease preventive properties [5]. Terpenoids and alkaloids exhibit hypoglycemic activities; steroids and triterpenoids as analgesics; saponins as antioxidant and anti-inflammatory; and flavonoids show anti-allergic, anti-inflammatory, antimicrobial and anticancer activities [7]. The phenolics such as flavonoids, phenolic acids and tannins, exhibit largely antioxidative property and diverse biological activities in plant [8].

A. SYNONYMS:

Common name: railroad vine, goat's foot vine.
Malayalam: Attampuvalli
Tamil: Attukal
Botanical name: *Ipomoea pes-caprae*
Family: Convolvulaceae (morning glory family)

II.DESCRIPTION

Ipomoea pes-caprea, also known as bay hops, beach morning glory or goat foot, it is a common pan tropical creeping vine belonging to the family convolvulaceae. It grows on the upper part of beaches and endures salted air. It is one of the most common and most widely distributed salt tolerant plants and provides one of the best oceanic dispersal. It is a

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creeper with a thick brown bark, and numerous long and prostrate branches with a smooth and hairless body surface. The leaves are3.8-5.7 cm, long and bilobed. The funnel shaped, rose-purple flowers are large usually solitary, growing upright stalks. The capsules are 1.3-1.6 cm, long, avoid, smooth and shiny. The seeds are covered with fine hairs. Its seeds are floats and are unaffected by salt water.

A. LEAVES:

Leaves are thick, smooth and alternate reaching 10cm in length. Each leaf is rounded and without teeth but is usually folded on the mid-vein and may be notched at the apex. The leathery heart-shaped leaves have a cleft at the tip and are shaped like a goat's footprint. Branches have milk-colored latex in the sap, while leaves and branches produce indole alkaloid ergotamine that protects the plant from most insects and grazing mammals.

B.FLOWERS:

Auxiliary funnel shaped flowers are showy; pink to lavender purple about 2 inches long. Each flower opens only once, in the morning, but they keep coming almost all year long, peaking from May through November. Corollas are 3 – 6 cm in length and are funnel shaped.

C.STEMS:

Stems are numerous, prostrate, glabrous, rarely twining, tough and flexible, 1.3cm in diameter, there branches freely and roots develop at the nodes. The stem runs along the ground rooting at the nodes with only the flowers being erect. [8, 9]

D.ROOTS:

Starchy root have an irritant taste, fibrous texture and a thick brown bark.

E.SEED:

Its seeds formed inside capsules can tolerate salt water.

F.HABITAT:

Ipomoea pes-caprae is one of the most widely distributed beach plants throughout tropical and subtropical areas in the world. It occurs along the beaches, coastal strands and tropical islands of tropical North and South America, East Central Africa, West Central Africa, India, Asia, and Australia. Plants creep over sand dunes, setting down adventitious roots, and eventually form large mats that prevent erosion.

III.COLLECTION OF PLANT MATERIAL

Ipomoea pes-caprae (leaves, stem and roots) were collected from samiyarpettai, Chidambaram (Latitude 11.5496° N; Longitude 79.7556° E) Cuddalore district, Tamilnadu, India during the month of June, 2017.The collected specimens were washed with tap water, then surface sterilized with 10 per cent Sodium Hypochlorite solution, rinsed with sterile distilled water and allowed to shade dried under room temperature. The samples were ground into fine powder using an electric blender.

IV.PREPARATION OF PLANT EXTRACT

One hundred grams of each powdered plant material (leaves, stem and roots) was successively extracted with petroleum ether, chloroform, ethyl acetate, and methanol by using Soxhlet Apparatus for 8 hours [10]. The extracts were filtered, pooled and the solvents were evaporated with the help of rotary evaporator (Heidolph, Germany) under reduced pressure at 40°C and the crude extracts were kept at 4°C in refrigerator for antimicrobial assay.

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V.PHYTOCHEMICAL ANALYSIS

The different extracts of *Ipomoea pes-caprae* were used for qualitative phytochemical studies like alkaloids, cardiac glycosides, terpenoids, steroids, flavonoids, phenolic compounds, tannins and saponins [11, 12].

A.LEAVES

The petroleum ether, chloroform, ethyl acetate, and methanol extracts of the leaf of *Ipomoea pes-caprae* revealed the presence of phytochemicals such as alkaloids, cardiac glycosides, terpenoids, steroids, flavonoids, phenolic compounds, tannins and saponins. The methanol extracts of *Ipomoea pes-caprae* revealed the presence of strong phytochemicals, alkaloids, terpenoids, steroids, phenolic compounds, tannins and saponins than root and stem. The ethyl acetate extracts were alkaloids, cardiac glycosides, flavonoids, phenolic compounds, and saponins. The chloroform extracts were terpenoids, steroid, tannin and saponin and the petroleum ether extracts contained alkaloids, phenolic compounds, tannin and saponin.

A preliminary phytochemical analyses of different extracts of leaves of *Ipomoea pes-caprae* L.

S. No.	***Phytoconstituents***	**Petroleum ether**	**Chloroform**	**Ethyl acetate**	**Methanol**
1	Alkaloids	+	-	+	+
2	Cardiac glycosides	-	-	+	-
3	Terpenoids	-	+	-	+
4	Steroids	-	+	-	+
5	Flavonoids	-	-	+	+
6	Phenolic compounds	+	-	+	+
7	Tannins	+	+	-	+
8	Saponins	+	+	+	+

(+) = Positive (present); **(-)** =Negative (absent)

B.STEM

The results of phytochemicals analyses of petroleum ether, chloroform, ethyl acetate, and methanol extracts of the stem of *Ipomoea pes-caparae* are presented in Table 2. The methanol extracts contained strong phytochemicals such as alkaloids, flavonoids, steroid, tannin, phenolic compounds and saponin. The ethyl acetate extracts were alkaloids, cardiac glycosides and flavonoids, tannin and saponin. The chloroform extracts showed flavonoids, terpenoids, and saponin. The petroleum ether extracts showed steroids, phenolic compounds and tannin.

A preliminary phytochemical analyses of different extracts of stem of *Ipomoea pes-caprae* L.

S. No.	***Phytoconstituents***	**Petroleum ether**	**Chloroform**	**Ethyl acetate**	**Methanol**
1	Alkaloids	-	-	+	+
2	Cardiac glycosides	-	-	+	-
3	Terpenoids	-	+	-	-
4	Steroids	+	-	-	+
5	Flavonoids	-	+	+	+
6	Phenolic compounds	+	-	-	+
7	Tannins	+	-	+	+
8	Saponins	-	+	+	+

(+) = Positive (present); **(-)** =Negative (absent)

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C.ROOT

The phytochemical analyses of different extracts of the roots of *Ipomoea pes-caprae* were carried out and results are presented in Table 3. The methanol extracts of root of *Ipomoea pes-caprae* revealed the presence of strong phytochemicals like alkaloids, cardiac glycosides, steroids, phenolic compounds, tannin and saponin. The ethyl acetate extracts were terpenoids, phenolic compound and tannins. The chloroform extract were terpenoids and saponin. All the phytochemical were absent in petroleum ether except flavonoids.

Preliminary phytochemical analyses of different extracts of Root of *Ipomoea pes-caprae* L.

S. No.	*Phytoconstituents*	Petroleum ether	Chloroform	Ethyl acetate	Methanol
1	Alkaloids	-	-	-	+
2	Cardiac glycosides	-	-	-	+
3	Terpenoids	-	+	+	-
4	Steroids	-	-	-	+
5	Flavonoids	+	-	-	-
6	Phenolic compounds	-	-	+	+
7	Tannins	-	-	+	+
8	Saponins	-	+	-	+

(+) = Positive (present); **(-)** =Negative (absent)

VI.CONCLUSION

Phytochemical screening revealed that wild *I. pescaprae* (L). Pharmacologically active components such as alkaloids, steroids and terpenes, flavonoids, and glycosides and phenolic Compounds. The plant which was more pronounced in methanol. These results show that this plant, which abundantly grows in the locality, has the potential to treat different kinds of ailments.

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