

# Bioactive Compounds and TLC Analysis of Two Medicinal Plants from Murud Janjira

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**Abstract:** The present study analyzes the leaves of *Ipomoea pes-caprae* (Roth) and *Ipomoea triloba* (L.) for their phytochemical composition using Thin-Layer Chromatography (TLC). Qualitative phytochemical screening was conducted to establish a scientific basis for their ethnomedicinal potential. The analysis confirmed the presence of various bioactive constituents, including alkaloids, flavonoids, saponins, and tannins. TLC profiling of ethanol, petroleum ether, and methanol extracts was performed to detect key phytochemicals such as alkaloids, tannins, and flavonoids. The findings validate the presence of these phytoconstituents in both plant species, supporting their potential medicinal significance. These results suggest that a polyherbal formulation incorporating these two medicinal plants could serve as a valuable source of bioactive compounds for therapeutic applications.

**Keywords:** Ethanol extract, Petroleum ether extract, Methanol extract, TLC, Phytochemical analysis

## I. INTRODUCTION

India has one of the richest and most varied cultural traditions connected with different medicinal plant species. Medicinal plants are abundant reservoirs of phytochemicals which possess several therapeutic belongings. Phytochemicals present in medicinal plants protect against many diseases (Myres, 1982). The chief components produced by plants are alkaloids, glycosides, flavonoids, polyphenol, saponin, steroids, tannins etc. The present investigation was aimed to investigate the TLC and phytochemical analysis for identification and authentication extracts of various leaves of different *Ipomoea pes-caprae* Roth and *Ipomoea triloba* L.

## II. MATERIALS AND METHODS

Collection and identification of plants leaves of *Ipomoea pes-caprae* Roth and *Ipomoea triloba* L. leaves were selected for the study. The selected plants were collected from the field, stored in air tight bottle.

Table 1: List of medicinal plants evaluated for thin-layer chromatography

Sr.No	Plant Name	Extract	Plant Part
1	<i>Ipomoea pes-caprae</i> Roth	Ethanol	Leaves
		Pet-ether	
		Methanol	
2	<i>Ipomoea triloba</i> L.	Ethanol	Leaves
		Pet-ether	
		Methanol	

### TLC Analysis

Thin layer chromatography TLC of herbal plant extracts was done according to standard methods [16]. Ethanol, Pet-ether and Methanol extract (500 mg) plants were dissolved in (50ml) respectively organic solvent and centrifuged at 3000 rpm for 5 minutes. The supernatant was collected and used for TLC analysis. The developed plates were dried in air heater to evaporate the solvents from the plates. The plates were kept in a photo-documentation chamber and the



images were captured in white light, UV 366nm. Then, the numbers of spotted were noted and Rf values were calculated.

### Preparation of extracts

Phytochemical Test The screening of the two selected medicinal plants for various phytochemical constituents were analyzed (Table 1). We characterized the different chemicals groups such as, Alkaloids, Tannins, Flavonoids and with reference to the technical described in the work (Farnsworth, 1974, Trease and Evans, 1987, Bruneton, 1999, Sharma et al., 2006). 1. Alkaloid : First, evaporate 10 ml of concentrated ethereal solution, the dry filtrate was mixed with 1.5 ml of HCl (2%) acid solution. After that, add two drops of Wagner and Mayer's reagent, and the yellow- white colour precipitate identifies the existence of the alkaloidal base.

2. Saponins : Initial, a test tube 1 ml of aqueous extract was added with few volume of distilled water. The solution was shaken vigorously for few minutes and observed for a stable persistent froth for 15-20 minutes.

3. Tannins : First, in a test tube about 1 ml of the ethanol extract was added with 2 ml of distilled water. Three drops of diluted ferric chloride solution were added and observed for green to blue-green colour specifies the presence of tannin.

4. Flavonoids : The ethanol extract 5ml was mixed to a concentrated Sulphuric acid 1 ml and 0.5 gram of Magnesium (Mg). A red or pink coloration that disappear on standing three minutes signifies the presence of flavonoids.

### III. RESULT AND DISCUSSION

Results and Discussion The qualitative analysis of phytochemicals is very essential for identifying and isolation of active compounds present in the plants. In the present study, qualitative analysis was undertaken to investigate the presence of various phytoconstituents in extracts of *Ipomoea pes-caprae* Roth and *Ipomoea triloba* L. (Table 2). The results of qualitative phytochemical analysis showed presence of various phytochemicals like alkaloids, tannins, flavonoids and saponins.

Table No.2

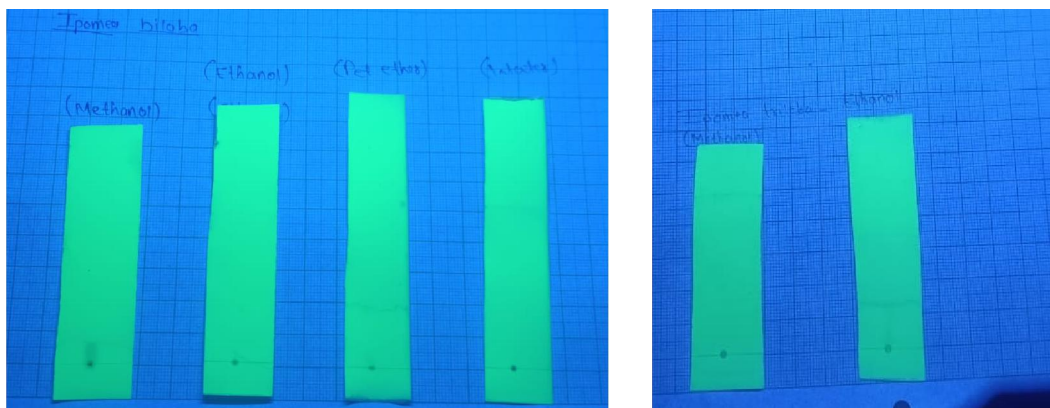
Sr.No	Plants Name	Name of Phytochemicals				Plant Leaves
		Alkaloids	Tannins	Flavonoids	Saponins	
1	<i>Ipomoea pes-caprae</i> Roth	+	-	+	+	Leaves
2	<i>Ipomoea triloba</i> L.	+	+	+	+	Leaves

Each extract of herbal plants were dissolved in different solvents like Ethanol, Pet-ether and methanol gives an impressive result that directing towards the presence of number of phytochemical. Various phytochemicals gives different Rf values in different solvent system. This variation in Rf values of the phytochemicals provides a very important clue in understanding of their polarity and also helps in selection of appropriate solvent system for separation of pure compounds by column chromatography. Mixture of solvents with variable polarity in different ratio can be used for separation of pure compound from plant extract. The selection of appropriate solvent system for a particular plant extracts can only be achieved by analyzing the Rf values of compounds in different solvent systems.

The TLC method is best choice for the identification of secondary metabolite present in plants. The different Rf values indicate the presence of different nature of phyto-constituents in single extracts. Different Rf values of the compound also reflects an idea about their polarity. This information will be helpful in selection of appropriate solvent system for further separation of compound from these plant extracts.

Sr.No	Plant Name	Plant Part	Extract	R.F Value
1	<i>Ipomoea pes-caprae</i> Roth	Leaves	Ethanol	0.4
			Pet-ether	0.6
			Methanol	0.3
2	<i>Ipomoea triloba</i> L.	Leaves	Ethanol	0.5
			Pet-ether	0.6
			Methanol	0.4





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