Phytochemical Analysis of Tamarix Ericoides Rotti (Tamaricaceae) - A Medicinally Important Plant of West Vidarbha Region

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***Abstract*—**Tamarix ericoides Rottl. Is a rare medicinally important plant of family Tamaricaceae. Plant is known for diabetes, Antidetermatosis, paralysis, febrifuge, and during aging etc. These plants used by local tribal communities as erthnomedicine. The present study is an attempt to investigate the preliminary phytochemical composition of this plant. The result reveals the presence of bioactive constituent comprising alkaloids, flavonoids, phenolic, tannins, glycosides, steroids and saponin in different solvents. The presence of these phytochemicals can be correlated with medicinal potential of the plants.

***Keywords*—**Erthnomedicine, Medicinal Plant, Phytochemical, Tamarix Ericoides

I. Introduction

TAMARIX ericoides Rottl. is tall shrub belonging to family Tamaricaceae. It is generally grows in bank of river in any seasons. It is tall shrub, blackish bark, leaves of minute. The most important characters of these plants are having reduced scaly lance like leaves. Plants show pink flower having 5-sepals, 5-petals, ovate, and free. The plants generally used by local peoples and tribal of Maharashtra as erthnomedicine on various ailments. The roots generally used diabetes, febrifuge, antidermatosis. It is also used on paralysis, upper limb; sensation of motion during egging. It is also dye yielding plants. The present study was designed to evaluate the fundamental phytochemical constituents of this medicinal plant [Chopra et al., 1956; Shrivastava et al., 1996; Trivedi, 2006].

II. Material and Method

The plant material collected from wild stage from near forest that is Chikhldara of Amravati district (M.S). Plant was identified by taxonomically by local taxonomist and with help of flora of Marathwada [Naik, 1998], flora of Maharashtra [Singh & Kartikeyan, 2000] and flora of Akola district [Kamble & Pradhan, 1988].

III. Extraction

The plant materials (leaves, stem, and flower) were washed thoroughly and dried in shade. The shade dried material are then powered and the powder used for photochemical analysis. The powder was then subjected to soxhlet extraction with different solvent (petroleum ether, benzene, acetone, chloroform, methanol and water) according to their increasing polarity. Each time before extracting with the new solvent the powder material was dried in air oven below 50c. The final extract of each solvent was use to analyze for the presence of different phytochemical constituents [Harborne, 1992; Harborne, 1998; Kokate et al., 2005]. The method employed for the quantification of various phytochemicals are described below.

3.1. Test for Carbohydrate

3.1.1. Fehling's Test

1ml of Fehling's A solution and 1 ml of Fehling's B solution were mixed and boiled for one minute. Now the equal volume of test solution was added to the above mixture. The solution was heated in boiling water bath for 5-10 minutes. First a yellow, then bricks red precipitated was observed.

3.1.2. Benedict's Test

Equal volume of Benedict's reagent and test solution were mixed in the test tube. The mixture was heated in boiling water bath fir 5 minutes. Solution appeared green showing the presence of reducing sugar.

3.2. Test for Proteins

3.2.1. Biurret Test

To the small quantity of extract 1-2 drop of Biurret reagent was added. Formation of violet color precipitate showed presence of proteins

3.2.2. Lead Acetate

To the small quantity of extract added to lead acetate the solution turned to white precipitate showed presence of proteins.

3.3. Test for Alkaloids

3.3.1. Mayer's Reagent

To the 2-3 ml of filtrate, 1 ml of dil HCL and Mayer's reagent was added and shake well. Formation of yellow precipitate showed the presence of alkaloids.

3.3.2. Dragendroff's Test

To the 2-3 ml of filtrate 1ml of dil HCL and Dragendroff's reagent was added and shake well. Formation of orange brown precipitate showed the presence of alkaloids.

3.4. Test for Tannins

3.4.1. Lead Acetate

On addition of lead acetate solution to the extract white precipitate appeared.

3.5. Test for Flavonoids

3.5.1. With Lead Acetate

To the small quantity of extract lead acetate solution was added. Formation of yellow precipitate showed the presence of Flavonoids.

3.5.2. Test for Saponins

Foam Test: To the 1ml extract 20ml distilled water was added and shakes well in measuring cylinder for 15 min. then 1cm layer of foam was formed.

3.5.3. Test for Coumarine

To the 2 ml of extract 10% NaOH was added and shake well for 5 min show the yellow color.

3.5.4. Test for Quinine

To the 2 ml of extract conc. H_2SO_4 was added and shake well for 5 min show the red color.

3.5.5. Test for Cardiac Glycosides (Keller-Killiani Test)

To the 5 ml of extract 1 ml of conc. H_2SO_4 2 ml of glacial acetic acid and 1 ml of drop of $FeCL^3$ solution was added. Appearance of brown ring shows the presence of cardiac glycoside.

Table 1 – Phytochemical Extraction of Tamarix Ericoides Rottl. (Leaf, Stem, Leaves)

S. No.	Compound	Test	Aqueous			Acetone			Methanol		
			L	S	F	L	S	F	L	S	F
1	Carbohydrate	Fehling	+	+	-	+	+	+	+	+	+
		Benedict's	-	+	+	+	+	+	+	+	+
2	Proteins	Biurret	-	-	+	-	+	+	-	+	+
		Lead acetate	+	+	+	+	+	+	+	+	+
3	Alkaloids	Mayer's	-	+	-	+	+	+	+	-	+
		Dragendroff's	+	-	+	-	+	+	+	+	+
4	Tannins	Lead acetate	+	+	+	+	+	+	+	+	+
5	Flavonoid	Lead acetate	+	+	+	+	+	+	+	+	+
6	Coumarine	--	+	+	-	+	+	+	+	-	+
7	Quinone	--	+	-	+	+	+	+	+	+	-
8	Saponins	--	+	+	+	+	-	+	+	+	+
9	Cardiac glycoside	--	+	-	+	+	+	-	+	+	-

Where, L-leaves F-flower S-stem

IV. RESULTS AND DISCUSSION

The extraction of the plant materials powder were done by using different solvents viz; petroleum ether, chloroform, acetone, methanol, and water. The preliminary phaytochemical analysis showed presence of alkaloids, glycosides, phenolic, Flavonoids, tannins, steroids, glycoside and saponins. However, all these chemicals were not extractable in one solvent. It has been observed that, organic solvent especially methanol is found to be more desirable to extract the phytoconstituents [Okaw, 2001]. Several workers investigated the preliminary phytochemistry of medicinal plants [Krishnaiah et al., 2009; Koche et al., 2010]. However, there is no report on the phytochemical analysis of Tamarix ericoides. Therefore, the present study will be helpful for further research in the field of pharmaceuticals.

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