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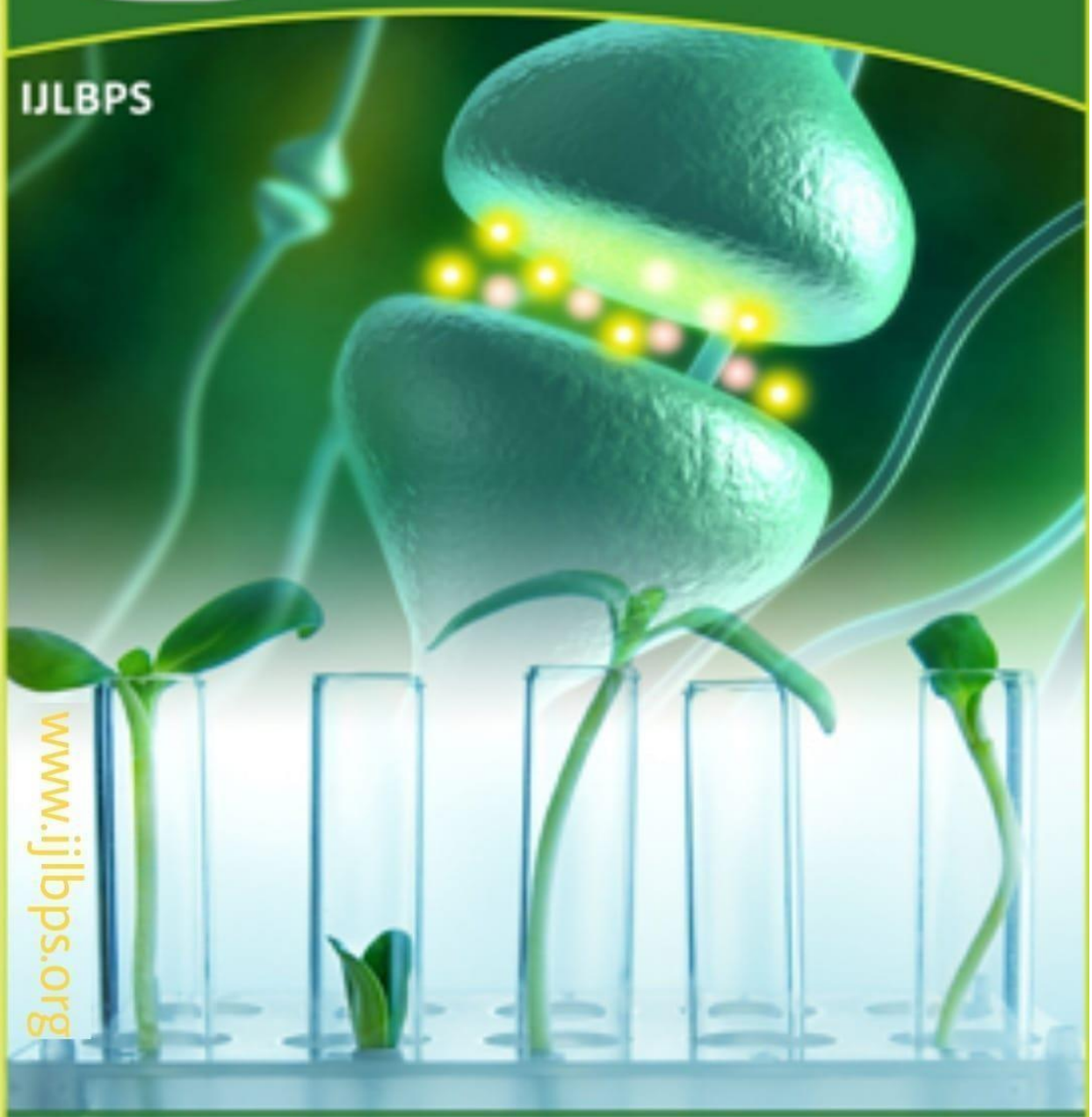

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Oroxylum indicum (L.) Kurz is a critically endangered ethno medicinal tree, thus its leaves and petioles were subjected to a phytochemical screening and TLC investigations.

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Abstract

The leaves and petioles of Oroxylum indicum were analyzed for phytochemical content. In order to evaluate the numerous bioactive substances. Trease and Evans (1989) and Harborne (1998) methodological standards were used for the analysis. Flavonoids, alkaloids, saponins, tannins, glycosides, sterols, fats, and oils were found in high, moderate, and low amounts, respectively, when phyto component analysis was performed on extracts from different regions of the plant. These biologically active molecules have great promise for the future treatment of a wide range of illnesses.

Key-Words: *Oroxylum indicum*, Phytochemical analysis, Phytoconstituents, TLC analysis, Fluorescence analysis

Introduction

The medicinal plants and their derivatives have long been recognized as an important source of therapeutically effective medicines as they contain secondary metabolites which are potential sources of drugs. Plant based products are healthier, safer and more reliable than synthetic products (Benli et al 2008). It has been estimated by WHO that approximately 80% of the world's inhabitants rely on traditional medicine for their primarly health care (Farnsworth et al., 1985). Furthermore, increasing reliance of the medicinal plants in the industriatized countries has been traced to the extraction and development of several drugs and chemotherapeutic from these plants as well as from traditionally used rural herbal remedies (UNESCO, 1998). During the past 20years, at least one novel compound from higher plants has been marketed every 2.5 years (Deans and Sovoboda, 1990).Oroxylum indicum is a critically endangered plant with significant traditional medicinal uses. The jungles of India, Sri Lanka, the Philippines, and Indonesia all include it (Anonymous 1972, Bennet et al., 1992), particularly in ravines and other damp areas. Large, pinnately complex leaves, reddish purple blooms, and long, slender capsules characterize this tall (12 m) plant.

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Anti-rheumatic, anti-bronchitic, anti-leucodermatic, anti-helminthic, anti-anorexic, and even leprosy and snakebite healing properties have been attributed to O. indicum's various leaves, seeds, roots, bark, and stem (Manonmani et al., 1995). Seed extracts are used extensively in traditional medicine due to their many medicinal properties, including those of anti-inflammatory, anti-tussive, anti-microbial, analgesic, anti-allergic, anti-bacterial, anti-viral, anti-arthritic, and diuretic (Warrier et al., 1995; Mao AA., 2002). Dasamoola, Chyawanaprasha, Brahma rasayana, Dhanawantara ghritha, Awalwha, Narayana taila, and Dantyadarishta are only few of the various medicinal formulations that use it as their primary constituent (Anonymous 1998).

The current study's goal is to identify physiologically active components in Oroxylum indicum seed, stem bark, and root extracts that may one day be used to treat a wide range of medical conditions.

from glaciers.

Flavonoid Assay

Phenopthalein and alcohol-based potassium hydroxideOlive oil saponin testHydrochloric acid pholbatannin test For the Dragendorff test, a few drops of Dragendorff's reagent (potassium bismuth iodide solution) were added to 1ml of each sample solution in a test tube. It was determined that alkaloids were present because of the presence of areddish brown precipitate.Tested using the Meyer's reagent (a 0.1 percent solution of potassium mercuric chloridein water), 1 milliliter of each sample solution was mixed with a few drops. There was a precipitate developed, andit had a creamy white color, suggesting the presence of alkaloids.Wagner's test: Wagner's reagent (Iodine inpotassium iodide) was applied to a few ml of each of the sample solutions, and a reddish brown precipitate formed,indicating the presence of alkaloids.A few drops of Hager's reagent (Picric acid) were applied to

1 ml of each sample,and a yellow precipitate developed; this indicated a positive reaction for alkaloids.

When 1 milliliter of each sample was mixed with a few milliliters of 10% tannic acid, a buff-colored precipitate appeared, indicating the presence of alkaloids.

The FeCl 3 test consisted of adding one drop of FeCl 3solution to each sample and observing the resulting yellow color. The precipitate formed a favorable reaction to the alkaloids.Glycoside AnalysisThe test solution in Raymond's experiment becomes violet when exposed to dinitrobenzene in hot methanolic alkali.The blood red color seen in the legal test samples after being treated with a pyridine and sodium nitroprusside solution.When a sample of water is treated with bromine, a yellow precipitate forms in the container.The Kellar Kiliani test was performed by adding 1 milliliter of concentrated sulphuric acid to 5 milliliters of extract, 2 milliliters of glacial acetic acid, and 1 drop of ferric chloride in a test tube.The material under test became a bright crimson after being treated with concentrated sulphuric acid.The Molisch test found that adding alpha naphthol and concentrated H2SO4 to test materials caused a reddish violet ring to form at the interface between the two layers.Analyses for Phenolic and Tannin Content

The material passed the ferric chloride test when a few drops of ferric chloride were added to the solution.A white precipitate formed after combining gelatin and water in the gelatin test.Different test tubes contained a few milliliters of the material to be tested, and then aqueous basic lead acetate was added. Reddish brown, voluminous preceipitate is the end outcome.The addition of an alkaline reagent, such as sodium hydroxide solution, causes a yellow to crimson precipitate to develop in the sample solution.In the Mitchell's test, tannins react with iron and either ammonium citrate or sodium tartarate to form a water-soluble iron-tannin complex.The elagic acid test indicates the presence of phenols when a muddy niger brown color develops when samples are treated with 5% glacial acetic acid and 5% sodium nitrite.Flavonoids AnalysisThe addition of zinc dust to concentrated hydrochloric acid produces a red color in this test for flavonoids in the sample solution.A reddish brown precipitation forms when aqueous basic lead acetate is introduced to a test sample.Separate samples of a few milliliters in volume were tested with a few drops of ferric chloride. This led to the development of a dark crimson precipitate.
Reduction of magnesium hydrochloride (Shinoda) test: When a little amount of magnesium ribbon and strong hydrochloric acid were dropped into the test solution, the solution became a reddish-pink color.
Test using an alkaline reagent: The presence of flavonoids was confirmed by adding sodium hydroxide solution to the test samples, which resulted in the production of a bright yellow color that faded with the addition of a few drops of dilute acid.

Sterol Analysis

The Libermann-Buchard test detects the presence of steroids by creating a brown ring at the intersection of the two layers after treating samples with a few drops of acetic anhydride, boiling, and adding a few drops of strong sulphuric acid from the sidewalls of the test tube.The presence of sterols was determined using the Salkowski test, in which a few drops of strong sulphuric acid were applied to test samples in chloroform, causing a red color to develop at the

bottom layer.Oil and Fat AnalysisTo do the stain test, simply sandwich a tiny amount of each extract between two filter sheets and examine the resulting stain to determine whether or not oils are present.Saponification test: Added a few drops of 0.5N alcoholic potassium hydroxide to different extracts with a drop of phenolphthalein separately end heat on water both for 1-2hours creation of soap or partial neutralization of alkali shows the presence of oils and fats.

The Lignins Tests

When gallic acid is applied to a sample for the Labatt coloration test, an olive green hue develops. The furfuraldehyde test detects lignin by producing a red color in the test material once the chemical is applied.

The Quinones Tests

The addition of alcoholic KOH to the test samples caused the appearance of red to blue colors, indicating a positive reaction for quinines.

Saponin analysis

For the foam test, 5 milliliters of extract were agitated until a dense, stable foam formed. The existence of saponins was confirmed by observing whether or not the foam formed an emulsion when combined with three drops of olive oil.

Extraction examination of a flowering

O..indicum leaf and petiole organic solvent extracts were analyzed for their flowering potential.
examined, and findings drawn, based on how their colors vary.
Chromatography on a Thin Layer
Using commercially available aluminium sheets of Silica gel 60 F254 (Merck) with a methanol:ethylacetate:water ratio of 36:36:28 as the solvent system, chromatograms of different solvent extracts of seed, leaf, and bark of stem of O.indicum were generated. The solvent spots were spotted using a capillary tube and put at an angle of 45 degrees in the solvent system, making sure that the solvent system did not come into contact with the spots. After the chromatogram had developed, the plates were removed, allowed to dry, and then visualized by spraying a visualizing agent called Dragendorff's reagent on them, followed by fumigation in an iodine chamber, which let the spots stand out more clearly.

Discussion and Results

The results of UV and Normal light fluorescence examination on all extracts are shown in Table-1. The results of the investigation demonstrated that there was a little change in coloration between UV light and regular light when observing the extracts.

Flavonoids, tannins, saponins, alkaloids, phenols, sterols, glycosides, lipids, and oils were found in the different organic solvents and extracts of o.indicum's leaves and petioles. Radhika L.G.2011 and Zaveri et al.2010 both found the same thing.Tables 2 and 3 show the findings of a phytochemical screen performed using extracts of fresh and dried leaves and petioles using several organic solvents in addition to water.

Flavonoids, alkaloids, tannins, saponins, phenols, lipids, and oils were found in abundance during the phytochemical examination, whereas glycosides, quinones, lignans, and sterols were found in lesser amounts.

Leaf juices, both fresh and dried,

Flavonoids, alkaloids, glycosides, tannins, sterols, phenols, saponins, lipids, and oils were found in both fresh and dried leaf extracts of O. indicum during a phytochemical analysis. All solvent tests for identifying these beneficial chemicals on fresh leaves came back positively, however the phytochemical detection was lower and glycosides were totally missing from the dried leaf extracts. The assays for phlobatannins were negative in both the extracts. It has been found that the degree of solubility of certain phytoconstituents in various types of solvents depends on the polarity of the solvents (Mahmood and Doughari, 2008).

Petiole extracts

Phytochemical screening of petiole extracts resulted in the presence of alkaloids, glycosides, tannins, flavonoids, sterols, phenols, lignins,and saponins while quinones were absent in all the extracts.

Alkaloids were screened positive in all the extracts except in petroleum ether and water. Glycosides were absent in aqueous extracts and weakly detected in methanol, benzene and petroleum ether. Tannins were screened positive in all the extracts and flavonoids were weakly present in all the extracts except in methanol were they were reported to be strongly present. Sterols, saponins and Lignins were positive in all the extracts while quinones were negative in all the extracts.

TLC Analysis

The extracts of leaf of each solvent were subjected to TLC. Chloroform, methanol and petroleum ether showed one similar spot with R_f value 0.610. Methanolic extract showed four spots of light green, dark green,blackish green and dark green with R_f values 0.288,0.440,0.508 and 0.644 respectively where as chloroform extract showed 8 spots of blackish green,yellowish green and yellow with R_f values 0.254, 0.389, 0.610, 0.728, 0.762, 0.847, 0.881 and
0.915.TLC of petroleum ether extract resulted in 4 spots with R_f values 0.389,0.610,0.762 and 0.915.

TLC analysis of petiole extract was also performed using the same solvent system. The analysis showed the presence of 3 spots in benzene with R_f values of 0.84, 0.54 and 0.33 and one each in chloroform, methanol, petroleum ether and aqueous extracts with R_f values 0.54, 0.90, 0.27 and 0.93 respectively when visualized with Dragendorff's reagent. R_f values represent relative migration only, whereas absolute values depend on various environmental parameters (e.g. temperature, humidity) which may vary depending on location.

Conclusion

From the above results it is evident that not only the phytochemical screening but also TLC studies of various solvent extracts of leaves and petiole revealed the presence of different phytoconstituents as evidenced by separated compounds with different R_f values.The plant species of *Oroxylum indicum* has been used as a traditional medicine for many different purposes in various medicines such as ayurveda, herbal, tribal and folk. The preliminary phytochemical screening of crude extracts of leaf and petiole of *O. indicum* revealed the presence of many bioactive substances hence can be used in preventing many major diseases as the results show therapeutic

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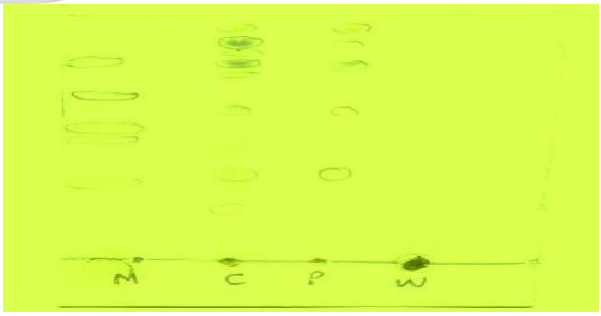

Fig. 1: TLC –Plate showing spots of different solvent extracts of leaf of *Oroxylum indicum*

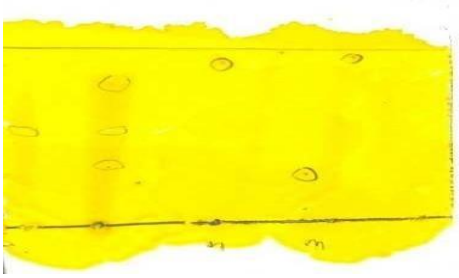

Fig. 2: TLC Plate showing spots of different solvent extracts of petiole of *Oroxylum indicum*

Table 1: Showing the fluorescence analysis of various extracts under normal and UV light

Name of the extract	Colour of the extract under normal light		Colour of the extract under UV light	
	Leaf	Petiole	Leaf	Petiole
Acetone	Bluish green	Light green	Dark Green	Dark Green
Benzene	Light green	Light green	Dark Green	Dark Green
Chloroform	Light green	Light green	Dark Green	Dark Green
Methanol	Light green	Light green	Dark Green	Dark Green
Petroleum ether	Light green	Light green	Dark Green	Dark Green
Water	Muddy brown	Light green	Dark brown	Dark Green

Table 2: Analysis of Phytochemicals on Leaf extracts of *Oroxylum indicum*

Phytochemical test		Methanol		Pet. Ether		Benzene		Chloroform		Water	
		F	D	F	D	F	D	F	D	F	D
ALKALOIDS	Dragendorff's test	+	-	+	+	+	+	+	+	+	+
	Mayer's test	+	+	+	-	+	-	+	-	+	-
	Wagner's test	+	-	+	+	+	+	+	+	+	+
	Hager's test	+	-	+	+	+	+	+	-	+	+
	Tanicacid test	+	-	+	+	+	+	+	-	+	+
GL	Raymond's test	+	-	+	-	+	-	+	-	+	-
	Legal's test	-	-	-	-	-	-	-	-	-	-
	Bromine water test	+	-	+	-	+	-	+	-	+	-