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Phytochemical Analysis of Corchorustrilocularis L.Occurring in Lonarlake: Unique Brackish Crater Lake in India

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ABSTRACT: Lonar Lake is an alkaline lake situated in Buldhana district of Maharashtra (India). It issurrounded by dense forest constituting many plants that have medicinal values. I haveselected this area because of the diverse atmospheric conditions. This presentinvestigation deals with the Phytochemical studiesof Leaf extracts ofCorchorustrilocularis L.
Species Corchorustrilocularis L. reported to possess good medicinal values in traditional system of medicine. The present investigationdeals with preliminary phytochemical investigation of leaves of Corchorustrilocularis L.
Phytochemical investigation of n-hexane, Ethyl acetate, Acetone, Ethanol, Methanol and water extract revealed the presence of glycosides, tannins, terpenoids, steroids,carbohydrates, alkaloids, saponins and proteins. The main aim of present investigation is to study the pharmacognostic characters andphytochemical standard of leaves of Corchorustrilocularis L.

KEYWORDS: Phytochemicals,Corchorustrilocularis L.LonarLake.

I.INTRODUCTION

Lonar Lake is a salt water lake created due to the impact of massive meteorites. It is aunique saline water lake in Asia. It is situated in Buldhana district of Maharashtra (India).The Lake is surrounded by the dense forest. It preserves innumerable valuable plants withmedicinal values[1]. Plants owing to its medicinal value have continued to play a dominant role in the maintenance of human health. The world health organization estimates that plant extracts or their active constituents are used as folk medicine in traditional therapies of 80% of world population[2]. Plants still represent a large untapped source of structurally novel compounds that might serve as lead for the development of novel drugs[3]. Herbal medicines are safer than synthetic medicines because the phytochemicals in the plant extract target the biochemical pathway. Traditional systems of medicines are prepared from a single plant or combinations of number of plants. The efficacy depends on the use of proper plant part and its biological potency which in turn depends upon the presence of required quantity and nature of secondary metabolite in a raw drug[4-5]. Several Pharmacopoeia containing monographs of the plant materials describe only the physicochemical parameters. Pure drugs that are produced or isolated from plants may be chosen for their high activity against a human disease, but they have disadvantages. They rarely have the same level of activity as the crude extract at parallel dose or concentrations of the active component[6]. Also the WHO has emphasized the need to ensure the quality of medicinal plants products using modern controlled technique and applying suitable standards[7]. As a result of the present situation there is a need of essential effort to standardize the plant materials. Corchorustrilocularis L. is one of the most common plants in India and is available throughout the year. The plant has been reported to possess anti-inflammatory[8]and demulcent[9] properties. In traditional folklore medicine in India, Corchorustrilocularisis also used for the treatment of syphilis[10].

The plant leaves are salty. They have purgative, tonic and stimulant properties[11]. The seeds taste bitter and consumed as medication for curing of fever, rheumatism and obstruction of the abdominal viscera. The entire plant is utilized in the curing diseases of the abdominal viscera by the rural populations in India. In addition anti-pyretic, anti-inflamma-tory and analgesic activities of the plant have been documented[12]. The plant genus Corchorus has documented the protective activity for gastric ulceration and in-vitro anti-acidic properties[13].The aim of this paper is to evaluate

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theprelimiinary phytochemical present in n-hexane, Ethyl acetate, Acetone, Ethanol, Methanol and water extracts of leaves of plant Corchorustrilocularis L.

II.MATERIALS AND METHODS

Plant material collection and preparation:

The leaves of the plantCorchorustrilocularis L. was collected fromdense forest around the Lonar Lake Dist. Buldhana, Maharashtra, India. Theleaves were dried under shade and then powderedwith a mechanical grinder and stored in airtightcontainer. 5g of leaf sample powder were sequentially extracted with solvents namely n-hexane, Ethyl acetate, Acetone, Ethanol, Methanol by soxhelt apparatus.Water extract prepared by Maceration process, leaf powder soaked in water for 72 Hrs with occasional shaking filtered through whatman No.1 filter paper. Crude filtrate extract used for preliminary phytochemical study.

Phytochemical Screening:

Each extract dividedinto different test tubes and various chemical constituents were screened. The differentconstituents tested for included Carbohydrates, Proteins, Amino-acids, Steroids,Glycosides, Flavonoids, Alkaloids and Tannins.

Tests for reducing sugars:

Felhing's test: Mix 1 ml Fehling's A and 1 ml Fehling's B Solutions, boil for 1 minute.Add equal volume of test solution. Heat it in boiling water bath for 5-10 min. Firstyellow, then brick red precipitate is observed.

Benedict's test: Mix equal volume of Benedict's reagent and test solution in a test tube.Heat in boiling water bath for 5 min. Solution appears green, yellow, or red depending onamount of reducing sugar present in test solution.

Tests for protein:

Millon's test: Mix 3 ml test solution with 5 ml Millon's reagent. White precipitate was occurred. Warm precipitate turn brick red or the precipitate dissolves giving red colored solution.

Tests for Amino Acids:

Ninhydrin test: Heat 3 ml test solution and 3 drops of 5% Ninhydrin solution in boilingwater bath for 10 min. Purple or bluish color appears.

Tests for Steroids:

Salkowski reaction: To 2 ml of extract, add 2 ml chloroform and 2 ml conc. H_2SO_4.Shake well. Chloroform layer appears red and acid layer shows greenish yellowfluorescence.

Test for Cardiac glycosides:

Keller-Killani test: To 2 ml extract, add glacial acetic acid, one drop 5% $FeCl_3$ and conc.H_2SO_4. Reddish brown color appears at junction of the two liquid layers and upper layerappears bluish green.

Tests for Flavonoids:

Shinoda Test: To dry powder or extract, add 5 ml 95% ethanol/ t-butyl alcohol, fewdrops conc. HCl and 0.5 g magnesium turnings. Orange, pink, red to purple colourappears.

Test for Phenols:

Extracts were treated with 3-4 drops of ferric chloride solution. Formation of bluish black colour indicates the presence of phenols.

Test for tannins:

To the extract, 1% gelatin solution containing sodium chloride was added. Formation of white precipitate indicates the presence of tannins.

III.RESULTS AND DISCUSSION

Physical appearance, color and odor of different extracts were recorded in (Table 1).

Table 1: characteristics of Corchorustrilocularis L. extracts

Sr. No.	Extract	Physical Appearance	Colour	odour
1	n-hexane	Syrupy mass	Light green	Aromatic
2	Ethyl Acetate	Semi solid mass	Dark green	Aromatic
3	Acetone	Semi solid mass	Green	Aromatic
4	Ethanol	Semi solid mass	Dark green	Pungent Aromatic
5	Methanol	Semi solid mass	Green	Pungent Aromatic

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6	Water	Syrupy mass	Faint Pink	Pungent

The preliminary phytochemical screening of the leaf extracts of Corchorustrilocularis L. shows to contain flavonoids, steroids, alkaloids, terpenoids, saponins, phenols, carbohydrates, amino acids, tannin and cardiac glycosides in all the extracts.Phytochemical tests for the presence of secondary phyto constituents showed following results.
(Table -2)

Fig.1: Leves and flowers of Corchorustrilocularis L.

Table 2.Preliminary phytochemical screening of Corchorustrilocularis L. leaves

Sr.No.	Phytoconstituents	n-hexane	Ethyl Acetate	Acetone	Ethanol	Methanol	Water
1	Alkaloids	+	+	-	-	-	-
2	Carbohydrates	-	-	-	+	+	+
3	Glycosides	-	-	-	+	+	+
4	Flavonoids	-	-	+	+	+	-
5	Phenols & Tannins	-	-	+	+	+	-
6	Steroids	-	+	-	-	-	-
7	Terpenoids	+	+	-	+	+	+
8	Saponins	-	-	-	-	-	+
9	Proteins	-	-	-	+	+	+
10	Amino Acids	-	-	-	+	+	+

IV.CONCLUSION

In the present work, the chemical constituent's presentn-hexane, Ethyl acetate, Acetone, Ethanol, Methanol and water extracts of Corchorustrilocularis L. leaves were evaluated. Based on the findings, was concluded that the presence of phytochemicals such asglycosides, tannins, terpenoids, steroids, carbohydrates, alkaloids, saponins and proteins. Naturally occurring plant bioactive compounds are a great source, to treat various diseases. The extracts also possess biologically active constituents worthy, responsible for antipyretic, anti-inflammatory, analgesic, antiacidicactivity. Further study the purification of individual compounds in each extract of leaves needed to evaluate for their bioactivities.

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