RESEARCH ARTICLE

Phytochemical screening of *E. acutnagula*, (Cyperaceae) Bhandara district of Maharashtra, India

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ABSTRACT

The present study designed for phytochemical screening. Different extracts of *E. acutangula* (Roxb.)Schult aerial and underground part of plant where screened for the presence of chemically active compound by slandered method. The result revealed the presence of steroids, terpenoide and resins in petroleum ether extract, Flavanoids and resins in chloroform extract, carbohydrates in methanolic extract, the water extract show the presence of Saponins, Tannin.

In India even in Maharashtra less information available about phytochemical analysis of Eleocharis species. Therefore I have chosen to investigate phytochemistry in *E. acutangula* (Roxb.)Schult, and study about isolation characterization of the various chemical active substance.

Keyword: Phytochemical screening, Eleocharis, *E. acutangula* (Roxb.) Schult.

INTRODUCTION

The genus Eleocharis R.Br. family Cyperaceae include about 200 species, occurring in wet environments like swamps, lake and river margins. There aerial part are formed by simple ramified stalks that end in a spiciform inflorance formed by numerous inconspicuous flower. There subterraneous part are formed by root and stem called rhizome or stolon. Data carried litterature[2] of E. dulci (Trin)] E. colorodoensis (Britt.), E. acuta (R.Br.) by Gills L.S. (1992), published by (Ruiz, A. L. T. G. et. all. 2006). E. acutangula found in Baphera in an irrigated area of Bhandara District of Maharashtra India. This species wildly distributed in temperate zone and are fully aquatic 20-40 inch in tall.

MATERIALS AND METHODS

Collection and identification of plant materials: The whole plant of *Eleocharis acutangula where* collected from uncultivated farmland located near wet environment of lake Baphera Tumsar Tehsil. The plant sample identified by authors. The voucher specimen where deposited. The plant samples were air dried and ground into uniform powder. The aqueous extract of sample prepared by soaking 100g of dried powder sample in 200 of distilled water for 12 h. The extract were filtered using whatman filter paper no. 42 (125m.m.).

Fig. 1: ***Eleocharis acutangula***

Phytochemical Screening: Chemical test were carried out on the aqueous extract using standard procedure to identify the constitute as described by Harborne, 1992; 1998, Kokate, 1994, Ablude 2001; 2007.

Extraction: One hundred and fifty centimeter of water was added to 20gm of ground sample in a conical flasks. The mixture was covered and allow to stand for three hours with occasional stirring. The mixture was filtered with a Watman No. 2 filter paper. This filtrate was stored in plastic container and kept in ambient temperature prior to analysis.

Alkaloid Determination: 0.5 to 0.6 g of the methanolic plant extract was mixed in 8 ml of 1 % HCl warmed and filtered. 2 ml of the filtrate were treated separately with both reagent (Maeyer's & Drangendorff's reagent) after which it was observed weather the alkaloids were present or absent in the turbidity. Yellow or reddish brown precipitation formation represent alkaloid present (Harborne 1992).

Carbohydrate Determination: Fehling test- 5cm^3 of mixture of equal volumes of Fehling A and B was added to 2cm^3 of each extract in a test tube. The resultant mixture was boiled for 2 minute. A brick red precipitation of copper oxide was observed. (Ablude 2001).

Tannin and Phenol Determination: Two drop of 5% $FeCl_3$ was added to 1cm^3 of extract. A blue dirty green precipitate was observed in each extract presence of tannin and phenol respectively. (Ablude 2007).

Flavonoids Determination: 5 ml of dilute ammonia solution where added to a portion of the aqueous filtrate of plant rhizome extract followed by addition of conc. H_2SO_4. A yellow colour observed in extract indicated the presence of flavonoids. The yellow colouration disappeared on standing then add few drop of 1% aluminum solution of filtrate further yellow colour obtained indicating the presence of flavonoids. (Safowara 1993, Harborne 1993).

Gum and resin Determination: About 10ml of the extract was slowly added to 25ml of absolute alcohol under constant stirring. Precipitation indicate the presence of Gum and Resins. (Harborne 1993)

Fixed oil and Fat determination: A drop of concentrated extract was passed in between two filter paper and kept undisturbed. Oil stained on the paper indicate the presence of Oil and Fats. (Harborne 1993)

Saponin Determination: About 1ml of the extract was dissolve in 20ml of water and shake in graduated cylinder for 15 minutes. Formation of 1cm layer of foam indicate the presence of saponin. (Kokate 1994)

Phytosterol Determination: Two ml of acetic anhydride was added to 0.5g ethanolic extract of sample with 2 ml H_2SO_4. The colour changed from violet to blue or green in some sample indicating the presence (Harborne 1993)

Terpenoids Determination: Five ml of each extract was mixed in 2ml of chloroform and conc. H_2SO_4 (3ml) was carefully added to form a layer. A reddish brown colouration of the inter face was formed to show positive result for the presence of terpenoids. (Ablude 2001)

Glycosides Determination: 10cm^3 of 50% H_2SO_4 was added to 1cm^3 of each extract in a test tube. The mixture was heated in boiling water for 5 minute. 10cm^3 of Fehling solution (5cm^3 of each solution A and B) was added and boiled. A brick red precipitated indicating presence of Glycoside. (Ablude 2001)

RESULTS AND DISCUSSION

Table 1: Preliminary phytochemical screening of *E. acutangula* Aerial and underground part of plant.

Sr. No.	Plant Part	Alk.	Cor.	Ta & Fe	Flv.	Gum & Resin	Fixed Oil & Fats	Sap.	Pste.	Terp.	Glyc.
1	Arial Stem	+	+	-	+	-	-	+	+	+	-
2	Inflorence Fruiting Body	+	+	+	+	-	+	+	+	-	-
3	Underground rhizome	+	+	+	+	+	-	+	+	-	-

+ sign present, - sing absent, Alk- Alkaloids, Cor- Corbohydrates, Ta & Fe- Tanin & Fenol, Flv- Flavonoids, Sap- Saponin, Pste- Phytosterol, Terp- Terpene, Glyc- Glycocide.

The phytochemical screening analysis, the extract show that presence of alkaloid, carbohydrate, flavonoids, saponin, phytosterol, is the active component which is found present in Aerial and underground part of plant. But tannin & phenol, terpene, gum and resin, fixed oil and fats are absent in Aerial stem and gum and resin, terpene, glycoside absent in inflorescences. Fixed oil and fats, terpene, glycosides absent in underground Rhizomes.

CONCLUSION:

The most of the active compound like alkaloid, carbohydrates, tannin, saponin, phytosterol, are pharmaceutically important are found present in *E. acutangula*. The plant contains Stem and Rhizome are free from fixed oil and fats, gum and resins and Glycosides.

Such active components found in *E. acutangula*. So this unusual and biologically significant plant is to known our civilize society.

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