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**BIOCHEMICAL ANALYSIS OF SUAEDA FRUTICOSA IN MAHARASHTRA, INDIA****<sup>1</sup>Akshay More and <sup>2</sup>Pratima Kadam**<sup>1&2</sup>Department of Botany<sup>1</sup>G.M.D. Arts, B.W. Commerce and Science College, and <sup>2</sup>Prof. Ramakrishna More Art's, Commerce and Science College  
<sup>1</sup>Sinnar and <sup>2</sup>Pune, India**Abstract**

**Suaedafruticosa** commonly known as sea blight belonging to family **Chenopodiaceae** occurs in arid and semi-arid salt marshes and salt flats. It can be used for soil sedimentation to reduce salinity and contamination by toxic metals. In the present study, *Suaedafruticosa* which was seen to be growing luxuriously in the Daund area of the Pune district and also plants growing in Thane were collected.

**Keywords:** Sedimentation; Contamination; Salinity; Sea-blight; Toxic.

**Introduction**

Natural salinity is a widespread phenomenon on earth, and the evolution of living organisms has resulted in numerous species that show a special adaptive mechanism to growth in saline environments. Salinity is an ever-increasing problem in the irrigated soil and more so in the marshy land of the coastal region (Carter 1975). The majority of the plants are relatively salt sensitive. Halophytes are found in coastal lands, tidal swamps, and inland saline and alkaline lakes and deserts. The ability of plants to survive and maintain growth under Saline conditions is known as salt tolerance (Jaleel et.al.2007). This is a variable trait that is dependant on many factors including the plant species. There is a continuous spectrum of plant tolerance to saline conditions ranging from glycophytes that are sensitive to salt to halophytes that survive under very high salt concentration (Valkmar *et. al.*, 1988). The ability of plants to survive under high salt concentration is important for the ecological distribution of plant species and agriculture in semi-arid, arid, and salinized regions. Most of the salt stress on plants is a result of sodium salts, particularly sodium chloride. Plants that can grow in the presence of high concentrations of sodium salts are called halophytes (Flowers T. and Yeo A. 1986). Halophytic plants are tolerant to salinity because they can take up water by maintaining a high osmotic potential through the accumulation of inorganic ions (Bradley P.M. and Morris J.T.1991).

Halophytes have thicker leaves, smaller and fewer stomata, larger cells, and the presence of well-developed water-storing tissues as adaptive features for the saline environment (Sharma 1986).

**Suaedafruticosa**, commonly known as a shrub. This is a species of plant belongs to the family-Amaranthaceae (formerly known as shrub sea blight, is a species of plant in the family Amaranthaceae (formerly classified under the Chenopodiaceae). It is a small shrub, with a very variable appearance over its wide range.

**Material & Method****Study Area and Plant Collection**

Daund in Pune district is having rich crop production of Sugarcane, Jowar, Bajra, and Maize. In certain fields 4 km away from Khedgaon *Suaedafruticosa* was seen to be luxuriously.

Daund taluka is a taluka in the Haveli subdivision of the Pune district of state Maharashtra in India.,Thane is a city in the Indian state of Maharashtra. Thane city lies in the co-ordinates 19.2183oN, 72.9781oE, and boasts of having 33 lakes in the city is thus fondly known as 'City of Lakes' among its resident.

So, we thought it to be very interesting and collected the samples grown in their natural habitat and carried out the physiological studies.

**Biochemical Analysis****I) Test for proteins**

To 1 ml of extract and add a few drops of nitric acid in the test tube and observed for the formation of yellow color ( O.H. Lowry & et.al.).

**II) Testfor resins**

Five mL of distilled water was added to the extract and observed for turbidity.



### III) Test for tannins

About 0.5 gm of each extract was taken in a boiling tube and boiled with 20 ml distilled water and then filtered added few drops of 0.1 % ferric chloride was added mix well and allowed to stand sometime. Observed for brownish green or a blue-black coloration (A. sofowara1993).

### IV) Test for Alkaloid

3 ml aqueous extract was stirred with 3 ml of 1% HCL on a steam bath. Mayer and Wagner's reagent was then added to the mixture. The turbidity of the resulting precipitate was taken as evidence for the presence of alkaloids (J.B. Harborne 1973).

### V) Test for Terpenoid

To 0.5 g of the extract, 2 ml of the chloroform was added; Conc. H<sub>2</sub>SO<sub>4</sub> (3ml) was carefully added to form a layer. A reddish-brown coloration of the interface indicates the presence of Terpenoid (J.B. Harborne, 1973)

### VI) Test for Flavonoids

A few drops of 1% NH<sub>3</sub> solution is added to the aqueous extract of each plant sample in a test tube. Yellow coloration is observed if flavonoid compounds are present (A. sofowara1993), (J.B. Harborne, 1973).

### VII) Test for Saponins

0.5 gm of extracts was added to 5 ml of distilled water in a test tube. The solution was shaken vigorously and observed for a stable froth. The frosting was mixed with 3 drops of olive oil and shaken vigorously after which it was observed for the formation of an emulsion (J.B. Harborne, 1973).

### VIII) Test for Phenols

The extract was taken in water and warmed and add 2 ml of ferric chloride solution. Observed for the formation of green or blue color.

### IX) Test for Acidic compounds

To the alcoholic extract, sodium bicarbonate solution was added and observed for the production of effervescences.

## Result and discussion

### Qualitative analysis on Phytoconstituents in Suaedafruticosa

Sr.No.	Phytoconstituents	<i>S.fruticosa</i> (Daund)	<i>S.fruticosa</i> (Thane)
1.	Protein	+	+
2.	Resins	+	+
3.	Tannins	+	+
4.	Alkaloid	-	-
5.	Terpenoid	+	+
6.	Flavonoid	+	+
7.	Saponins	-	-
8.	Phenols	+	+
9.	Acidic Compounds	+	+
10.	Glycosides	+	+

(+): Present, (-): Absent

In the present investigation, we have observed that the leaves of *Suaedafruticosa* possess some important primary and secondary metabolites viz. Proteins, Resins, Tannins, Glycosides, Terpenoid, Phenols, Flavonoid, Acidic compounds are present, Alkaloids, and Saponins are absent in both the plants. Similar observations have been carried out by Lakshmanan *et al.*, (2013) in *Saudeamonoica* and *Sesuviumportulacastrum* from Palayakayal mangrove forest of Tamil Nadu.

They think that the primary and secondary metabolites are very much important for the regular mechanism/survival of the species and also it can be used for therapeutic purpose and that the further research work is needed in the area of biologically active molecules and can be executed for various applications of life science.



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## Conclusion

Protein, Resins, Tannins, Glycosides, Terpenoids, Phenols, Flavonoid, and Acidic compounds are present, and Alkaloid, and Saponins are absent in the plants from both the areas i.e., Daund and Thane.

## References

1. A.sofowara , “ Medicinal plants and Traditional Medicine in Africa “ , Spectrum Books Ltd, Ibadan, Nigeria. 1993: p. 289.
2. Bradley P.M. and Morris J.T.1991, Relative importance of ion exclusion, secretion and accumulation in *Spatina alterniflora* Loisel. *Journal Exp.Bot.*, 42, 1525-1535.
3. Carter D.L. (1975) Problems of Salinity in Agriculture. In: Poljakoff-Mayber A., Gale J. (eds) *Plants in Saline Environments. Ecological Studies (Analysis and Synthesis)*, vol 15. Springer, Berlin, Heidelberg.
4. Flowers T. and Yeo A. 1986, Ion relations of plants under drought and salinity, *Aust. J. Plant Physiol*, 13:75–91.
5. G.E. Trease and W.C. Evans. *Pharmacognosy*. 11<sup>th</sup>edn. BraillierTiridel Can. 1989. Macmillian publishers.
6. G.Lakshmanan , C.Rajeshkannan, A.Kavitha, B.Mekala and N.Kamaladevi, “ Preliminary screening ofbiologically active constituents of *Suaedamonoica* and *Sesuviumportulacastrum* from palayakayal mangrove forest of Tamilnadu” *Journal of Pharmacognosy and Phytochemistry* , 2 (3) , 149-152 , 2013.
7. Jaleel C.A., Gopi R., Manivannan P., Panneerselvam R.Responses of antioxidant defense system of *Catharanthus roseus* (L.) G. Don. to paclobutrazol treatment under salinity
8. *Acta Physiologiae Plantarum*, 29 (2007), pp. 205-209.
9. J.B. Harborne. “*Phytochemical methods*, London. Chapman and Hall”. Ltd., pp.49-188,1973.
10. K. M. Volkmar, Y. Hu and H. Steppuhn, “Physiological responce of plants to salinity.”, a review,*Can J. Plant Sci.*, 78:19-27, 1998.
11. O.H. Lowry, N.J. Poesenbrough, A.L. Fal and R.J. Randall, “Protein Measurement with the folin phenol reagent”, *J. Biol. Chem*, Vol. 193, pp. 265-275,1951.