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Analysis of *Sesuvium portulacastrum* (L.) L. by E. D. S. method

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Abstract
Sesuvium portulacastrum (L.) L. is a creeping, ornamental plant of family Aizoaceae. It is a perennial herb that grows as mangrove associate throughout the world. It is found in the northern, western and central parts of the world. The thick, fleshy leaves are borne on succulent, reddish green stems that branch regularly forming dense stands close to the ground. It grows in sandy clay, coastal limestone and sandstone, tidal flats and salt marshes the aim of present research work is to study of the elemental analysis of dried powder of whole plant. The plant was collected from Purna Estuary, Navsari Gujarat, India. The plant was dried in shade and the powder was prepared. The further analysis was done with help of Energy Dispersive Spectroscopy (EDS). In this elemental analysis, Carbon, Nitrogen, Oxygen, Sodium, Magnesium, Aluminum Silicon, Chloride, Potassium, Calcium, Iron were found.

Keywords: elemental analysis, *Sesuvium portulacastrum* (L.) L., Energy Dispersive Spectroscopy (EDS)

1. Introduction
Sesuvium portulacastrum (L.) L. is prostrate, much branched sprawling perennial herb, occasionally creeping on the muddy frequently tidal inundated slopes of saline habitats in the Aizoaceae family, also known as Shoreline purslane or Sea purslane is a sprawling that can exist under stress conditions. As it is well adapt to salinity and drought, *Sesuvium portulacastrum* (L.) L. is halophytic species. It is a frequent pioneer species in the backshore zone of coastal beaches, where sand drive is influenced by prevalent winds near the born crest. Temporal and spatial patterns in growth and biomass production of *Sesuvium portulacastrum* (L.) L. were evaluated along the banks of Purna estuary, Navsari, Gujarat. Considering ecological significance, tolerance to wide salinity range and adaptability to sandy and muddy substratum of a great value in protection, conservation and restoration of estuarine and creek systems in India. The habitats of this plant in the country have been categorized under ecologically sensitive zone, and protected wide Coastal region.

The chemical composition and biological activities of leaf oil of *Sesuvium portulacastrum* (L.) L. was studied by Magwa, *et al*· [4]. Cultivation, utilization distribution *Sesuvium portulacastrum* (L.) L. was studied by Lokhande [3]. The essential Trace elements levels in *Sesuvium portulacastrum* (L.) L. was studied by Gathi [1]. The review of Sea Pursalane was taken by Manbir and Nikita [5]. The GC –MS analysis of bioactive constituents from coastal Dune taxon- *Sesuvium portulacastrum* (L.) L. was studied by Shella and Uthayakumari [2]. A review of the action against drough, Salt stress, sand fixation, food and Phytoremediation of *Sesuvium portulacastrum* (L.) L. was studied by Vinayak Lokhande [6].

Elemental research has definitely been part of this upsurge of scientific knowledge. Metals have tendency to bioaccumulation. This bioaccumulation is therefore essential in hazard evaluation strategies.

The quantitative estimation of various elements' concentration is important for determining for the salt tolerance. The elemental screening of whole plant was carried out by using Energy dispersive spectroscopy (EDS) for the comparative analysis of whole plant.

2 Materials and Methods
2.1 Collection of plant material
The whole plants of *Sesuvium portulacastrum* (L.) L. was collected from the coastal region of Purna estuary, Gujarat in November 2017 and identified. They were separately dried at 60^0 C for half an hour till a constant weight was achieved. The whole plant was shade dried, blended to fine powder for the elemental screening. Elemental analysis was carried out by using Energy Dispersive Spectroscopy (EDS) for the comparative analysis.

Fig 1: *Sesuvium portulacastrum* (L.) L.

2.2 Elemental Analysis
The elemental analysis was done at Institute of Chemical Technology, North Maharashtra University, Jalgaon. Samples in powder form were used for Energy dispersive spectroscopy (EDS) (Model No. - X Flash Detector 5030 made in Germany)

for the comparative analysis of whole plant.

3. Result

A total of 11 elements i.e. Carbon, Nitrogen, Oxygen, Sodium, Magnesium, Aluminum, Silicon, Chloride, Potassium, Calcium, Iron were analyzed from Whole plant. The result of elemental composition of the analysis was presented as follows.

Table 1: The percentage (%) of elements of whole plant.

Sr. No.	Elements	Percentage %
1	Carbon	4.80
2	Nitrogen	1.00
3	Oxygen	5.20
4	Sodium	0.27
5	Magnesium	0.13
6	Aluminum	0.40
7	Silicon	0.48
8	Chloride	0.11
9	Potassium	0.12
10	Calcium	0.06
11	Iron	0.20

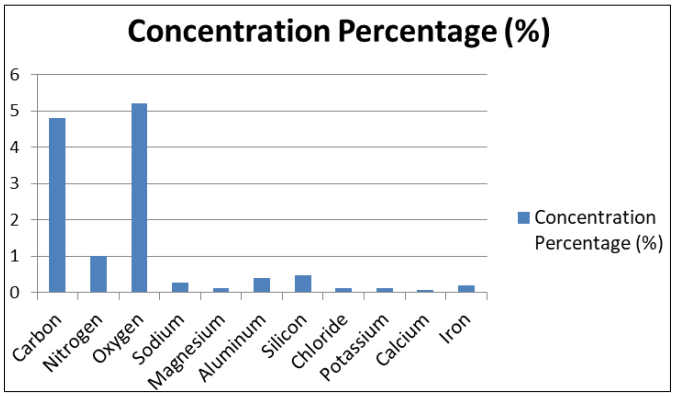

Fig 2: Elements versus Elemental Concentrations.

In present analysis, element oxygen has the highest 5.20 % while Calcium has the lowest 0.06 % composition in this plant. Carbon is having second position with regard to percent composition. It is found that Nitrogen (1.00%), Sodium (0.27%), Magnesium(0.13%), Aluminum(0.40%), Silicon (0.48%), Chloride (0.11%), Potassium (0.12%), and Iron (0.20%) are also present.

4. Conclusion

In *Sesuvium porulacastrum* (L.) L. 11 important elements are found which exist in the form of salts. It groves in the salty tidal zone around true mangrove *Avicennia marina* (Forssk.)Vierh. Hence the percentage of elements suggests that it is mangrove associate.

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6. References

1. Gathi Lucy Waigwe the essential Trace elements levels in *Sesuvium portulacastrum* (L.) Ph.D. Topic (Thesis) by in the School of pure and applied Sciences of Kenyatta University, 2013.
2. Shella D, Uthayakumari F. The GC-MS analysis of bioactive constituents from coastal Dune taxon- *Sesuvium portulacastrum* (L.) L. Bioscience Discovery. 2013; 4(1):47-53.
3. Lokhande VH, Nikam TD. Penna Suprasanna Cultivation, utilization distribution of *Sesuvium portulacastrum* (L.) Genet.Resour Crop Evol, 2009.
4. Magwa ML, *et al*. The chemical composition and biological activities of leaf oil of *Sesuvium portulacastrum* (L.) Journal of Ethnopharmacology. 2006; 103(1):85-9.
5. Manbir Kaur. Nitika review on Sea purslane Journal of Pharmacognosy and Phytochemistry. 2015; 3(5):22-24.
6. Vinayak Lokhande, Bhoomi Gor, Neetin Desai, Tukaram Nikam, Penna Suprasanna A review of the action against drough, Salt stress, sand fixation, food and Phytoremediation of *Sesuvium portulacastrum* (L.) Agron. Sustain. Dev. 2013; 33:329-348.