



## Seasonal variability of Trace metals in Sediment in the Estuarine of River Godavari

P.Krishna Kishore,  
Lecturer in Chemistry, SKBR College, Amalapuram.

**Abstract:** Godavari is the largest river in South India. The Gowthamy Godavari estuary is a drowned river mouth type of estuary and is characterized by numerous islands and creeks that are separated from the main channel by sand bars. It is having a drainage type of basin of about  $3 \times 10^5 \text{ km}^2$ . In the monsoon season trace metals cadmium and copper are deposited in sand due to floods. The author has taken a systematic study of distribution of trace metals in sediment.

**Keywords:** Godavari estuarine sediment, trace metals, Flocculation.

### Introduction

The river Godavary receiving the lot of chemicals and metals at the time of floods in monsoon season. At the mouth of river estuary sand is deposited. The author has taken systematic study of distribution of trace metals in sediment in different seasons.

### Materials & Methods

Gowthami Godavari estuary is divided into 5 stations. They are:

1. Mukteswaram,
2. Sanapallilanka,
3. Edurulanka,
4. V. Gowthami and
5. Bhairavapalem.

Mukteswaram is located in the centre of the stretch of Gowthami Godavari, head of the estuary. It is 41 km away from the mouth of the estuary and minimum tidal action is there. Sanapallilanka is located in the centre of the river Gowthami Godavari. 3 km down from Mukteswaram. Both sides have villages and agricultural lands. Edurulanka is located in the centre of the estuary of

Godavari. 22 km away from the mouth of estuary.

V. Gowthami is located at the centre of the estuary 5 km down to Edurulanka.

Bhairavapalem is located at the centre of the mouth of the estuary nearer to the mouth of the estuary.

### Results and Discussion

Some of the most important geochemical processes influencing variability are missing of land and riverine suspended matter with marine material.

Very few studies have been made on the distribution of trace metals in the sediment of river Godavari sand content in the sediment of the Gowthami.

Estuary ranged from 22.35 to 79.25%, with an average of 47.45%. The silt content in the sediments of the Gowthami estuary ranged from 8.35 to 43.45% with an average of 25.54%. Clay content ranged from 12.40 to 45.48% with an average of 27.97%.



**Cadmium:-** Station wise summary statistics of cadmium concentration in the sediment of Godavari.

Station	Min.	Max.	Average	SD
Mukteswaram	25.20	29.56	27.24	1.76
Sanapallilanka	24.36	35.14	28.37	4.74
Edurulanka	23.56	33.72	27.28	4.47
V.Gowthami	22.56	31.16	25.64	3.84
Bhairavapalem	17.16	26.18	20.86	3.87

Seasonally higher values of cadmium were observed during monsoon and post monsoon season and lower values were observed during pre monsoon season.

**Copper:-** Station wise summary statistics of copper concentration in the estuarine sediments of Gowthami Godavari during the study period were given in table below:

Station	Min.	Max.	Average	SD
Mukteswaram	38.50	207.50	104.43	79.01
Sanapallilanka	36.30	185.00	95.33	71.17
Edurulanka	34.20	176.00	89.93	66.98
V.Gowthami	33.10	133.00	75.40	49.34
Bhairavapalem	21.25	101.50	57.19	38.90

Copper is an important heavy metal. In concentration in the sediments of Gowthami Godavari estuary ranged from 21.25 to 207.50  $\mu\text{g/g}$  with an overall mean concentration of 78.71  $\mu\text{g/gr}$ .

The lowest value 21.25  $\mu\text{g/g}$  of copper was observed at the mouth of the estuary Bhairavapalem and the highest value 207.50  $\mu\text{g/g}$  was observed at Mukteswaram which is head of the estuary.

**Conclusion:** The average concentration of copper (78-71  $\mu\text{g/g}$ ) Godavary estuary is higher than Indian average 28mg/kg.

### Acknowledgments

The author thanks the authorities of shore laboratory at Yanam for providing laboratory facilities.

### References:

1. Attri – Seasonal assessment of heavy metal – Eco.Biotech 3, 9-15.(2011)
2. Krupadam – Distribution of metals – water, air, soil pollutant – 150-299-38 (2003)
3. Raju – proc.Intl. Acad-3, 59-75, (2013)