

Short Note

Foliar Spray Application of Vikalp Urja on growth performance and biochemical changes in the Mangrove seedlings. Dr. Nivas M. Desai Department of Botany, Dapoli Urban Bank Senior Science College, Dapoli, Dr. Umesh Pawar Department of Botany, Shri Pancham Khemraj Mahavidyalay, Sawantwadi Submitted

Location

Dapoli –, Maharashtra.

Selected plants

Sr. No.	Name of Plant	Approx. Age
1	<i>Rhizophora Mucronata</i>	8 months old seedling
2	<i>Kandelia Candel</i>	8 months old seedling
3	<i>Avicennia Marina</i>	8 months old seedling
4	<i>Avicennia Officinalis</i>	8 months old seedling

Spraying Schedule

The spraying were started in 8 month old seedlings and the treatment were done weekly for next 3 months.

Measurements and Data Collection

1. Growth Metrics:
 - a. Measure plant height, root length, shoot length, no. of leaves stem diameter, and number of new leaves weekly.
 - b. Assess overall plant health.
2. Photo synthetic Activity:
 - a. Measurement of Chlorophyll content to understand how Vikalp Urja influences photosynthesis.

Growth parameters

1. Plant height
2. Plant dry weight
3. Leaf area Index
4. Absolute growth rate
5. Relative growth rate

Physiological parameters

1. Leaf chlorophyll content
2. Leaf carotenoids

Biochemical parameters

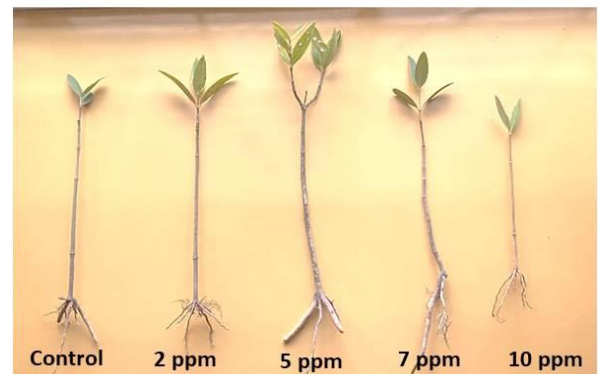
1. Total Antioxidant Activity
2. Total phenols
3. Soluble proteins
4. Total sugars

EXPERIMENTAL FINDINGS

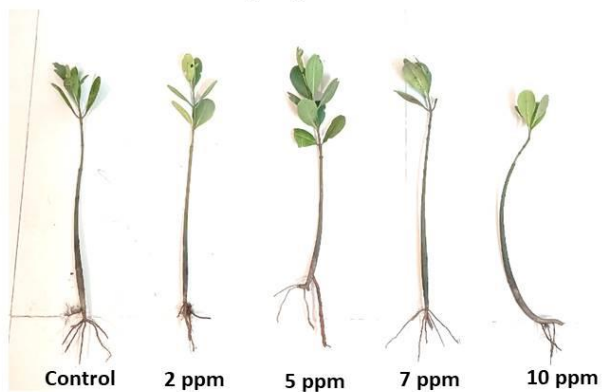
Effect of Vikalp Urja on *Rhizophora mucronata*



Effect of Vikalp Urja on *Avicennia marina*



Effect of Vikalp Urja on *Kandelia candal*

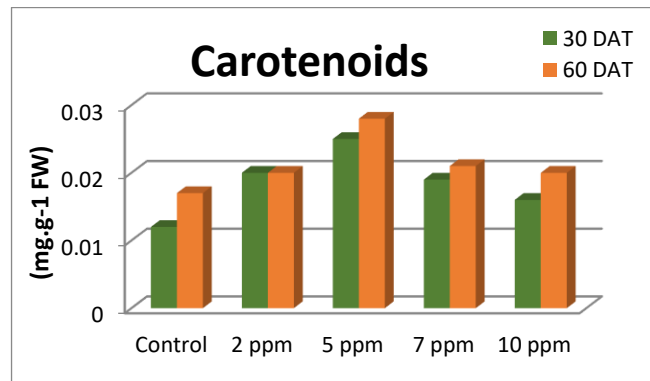
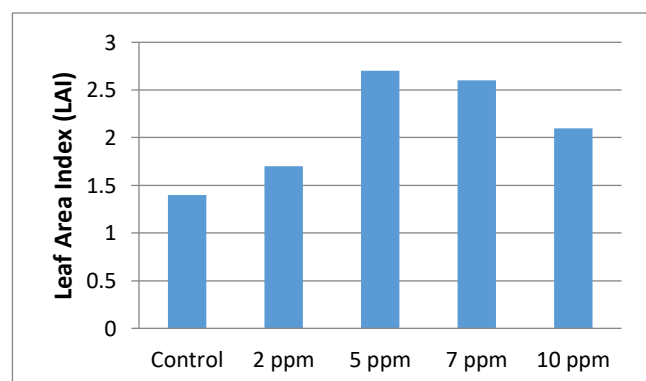
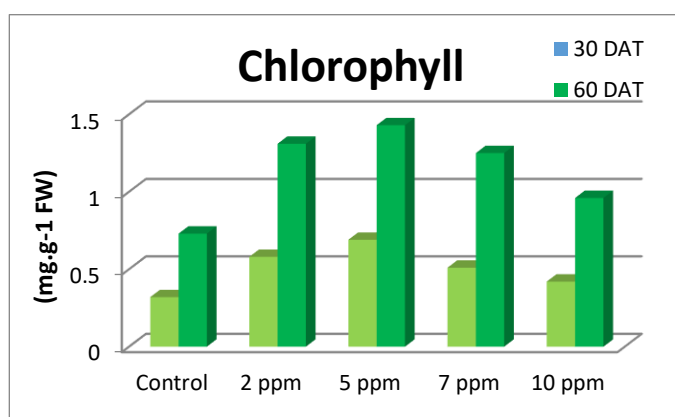
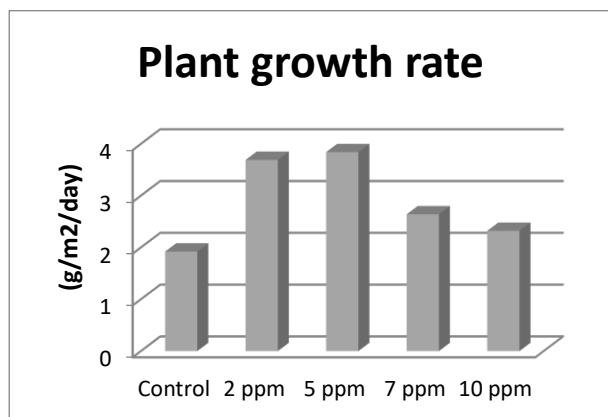
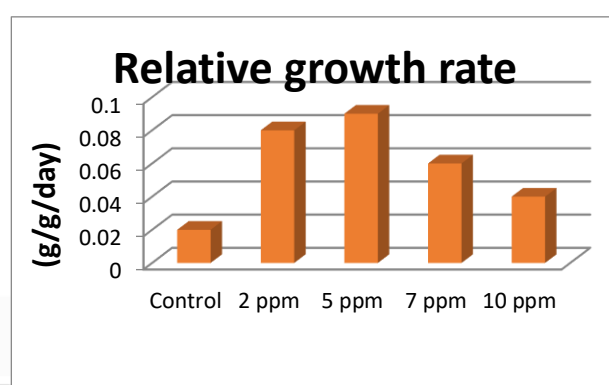
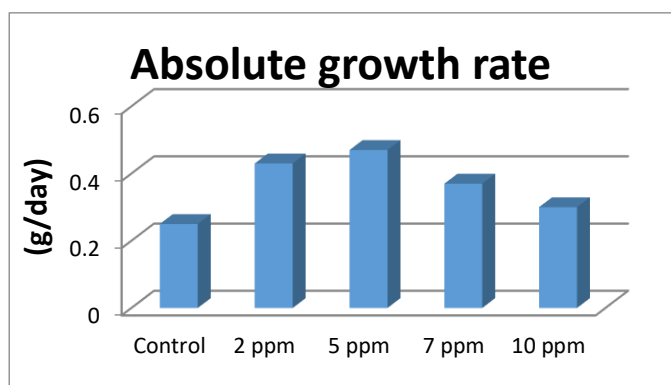
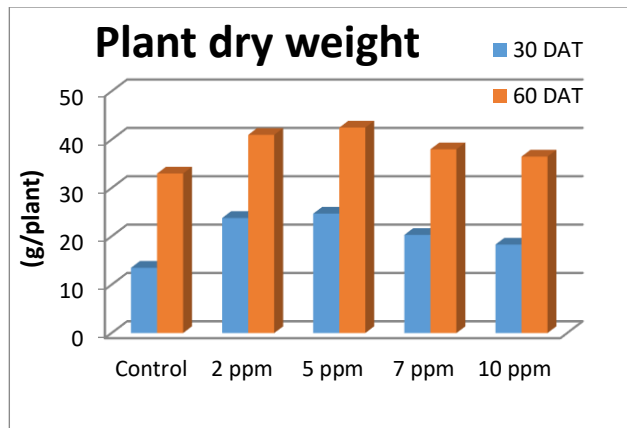
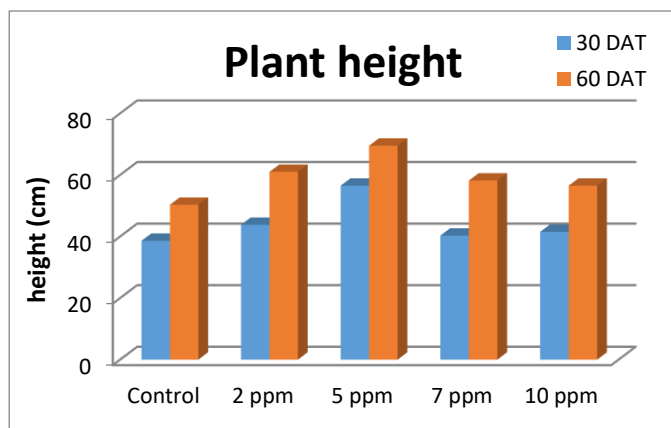


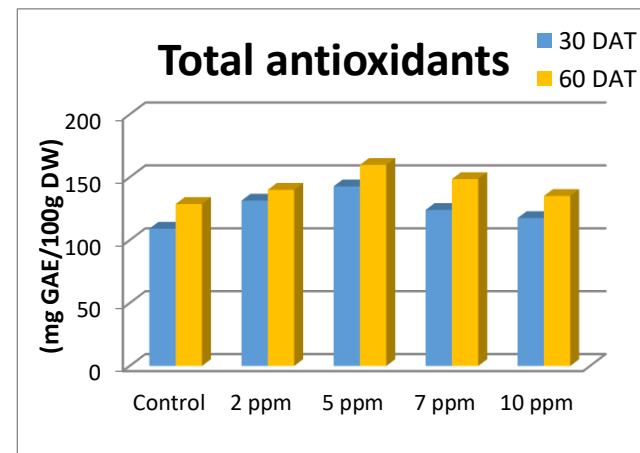
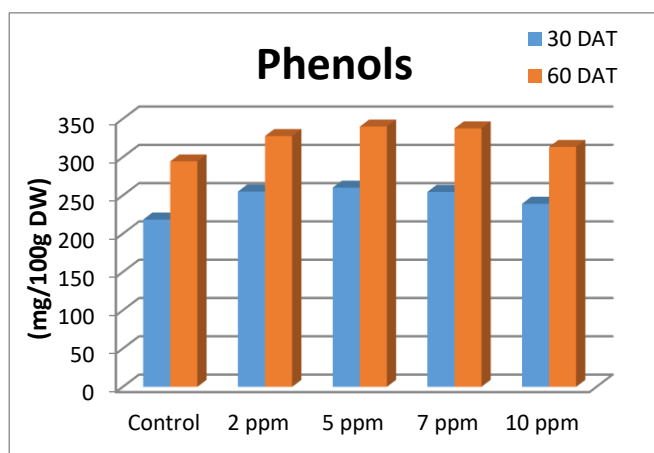
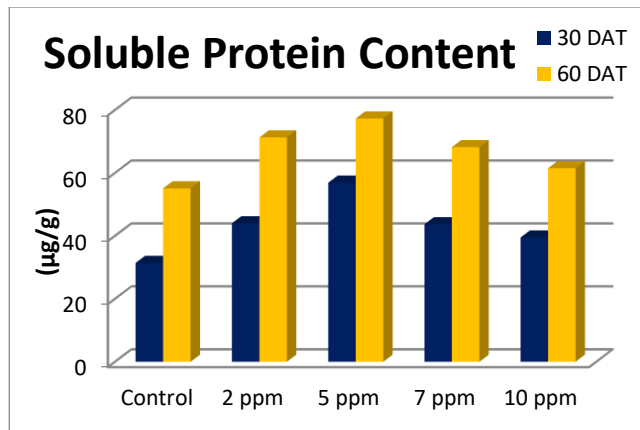
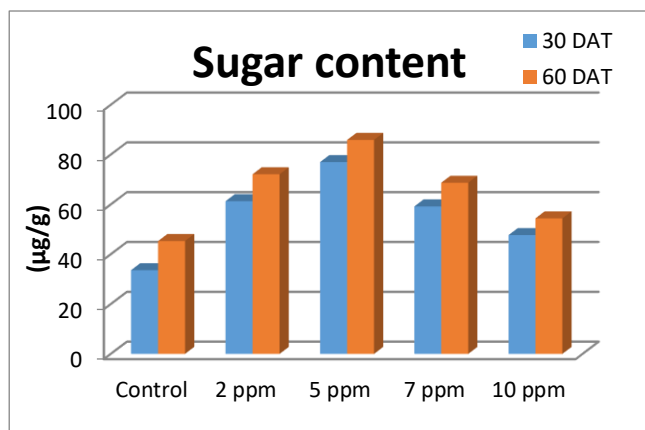
Effect of Vikalp Urja on *Avicennia officinalis*



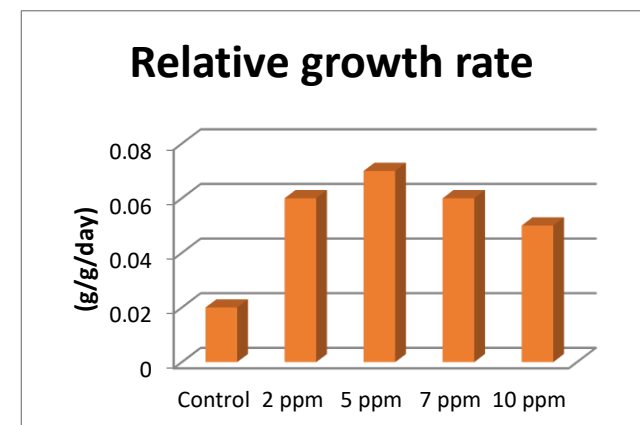
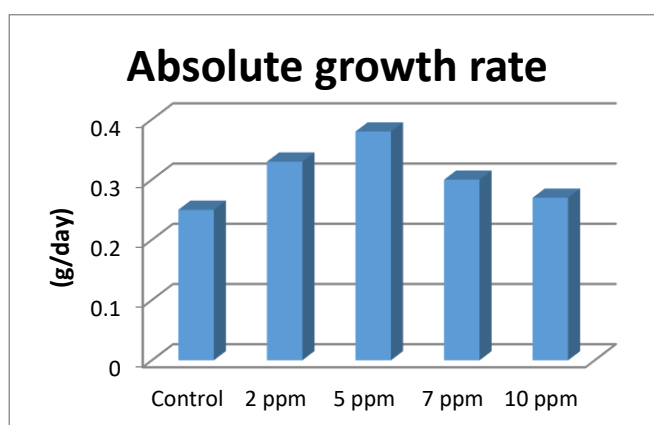
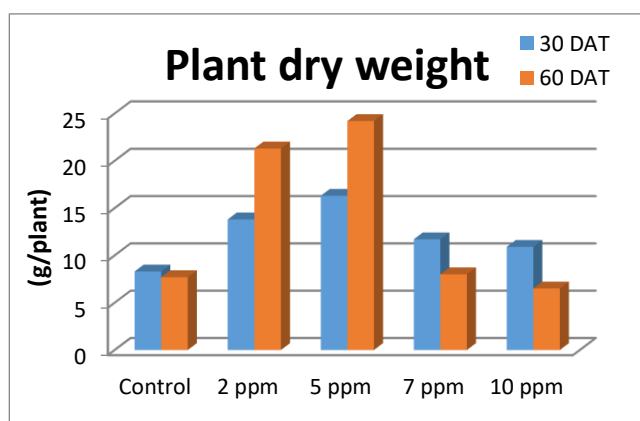
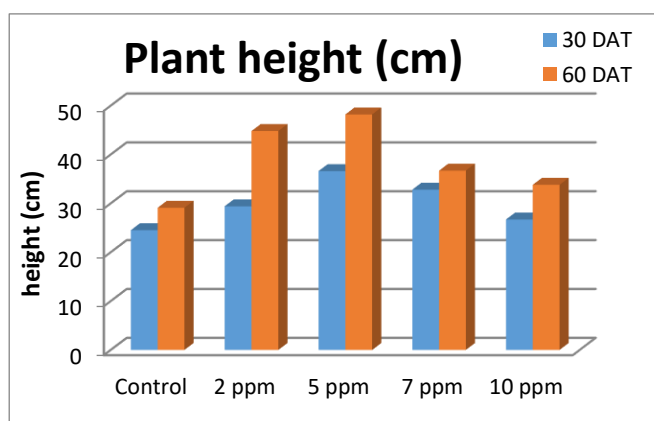
EXPERIMENTAL FINDINGS

RHIZOPHORA MUCRONATA SEEDLINGS

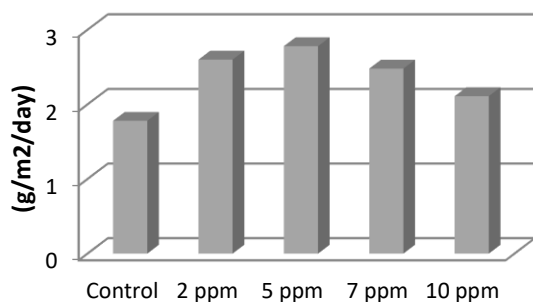




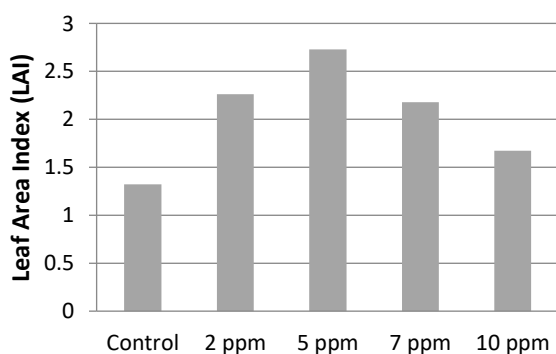
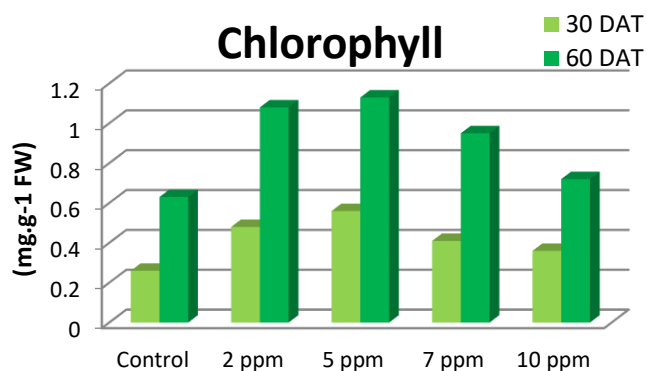
EXPERIMENTAL FINDINGS KANDELIA CANDAL SEEDLINGS



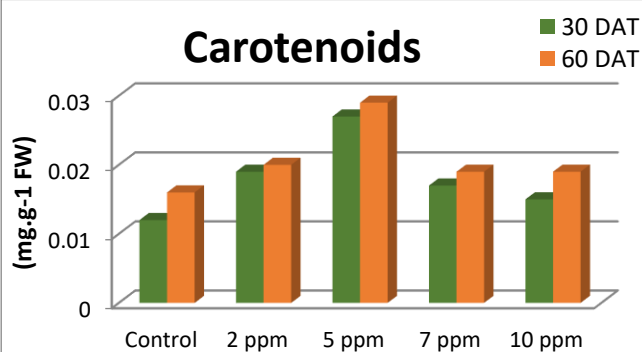
Plant growth rate



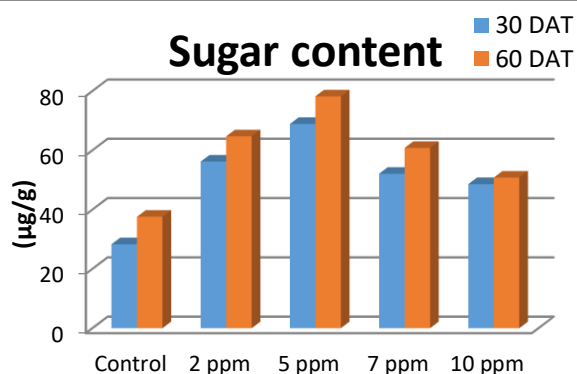
Chlorophyll



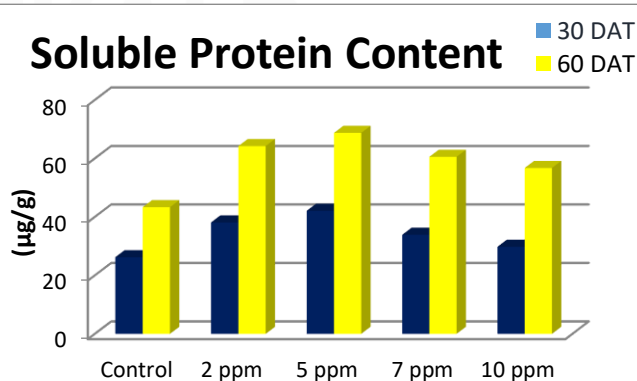
Carotenoids



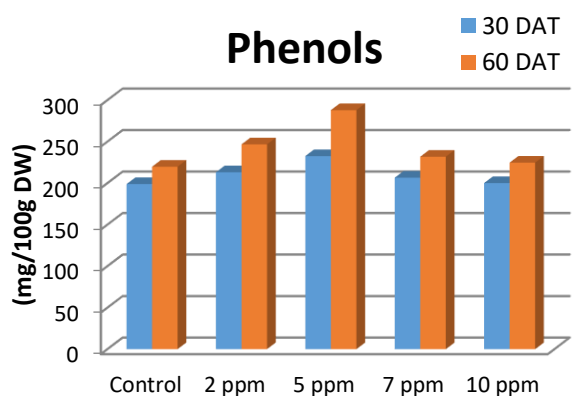
Sugar content



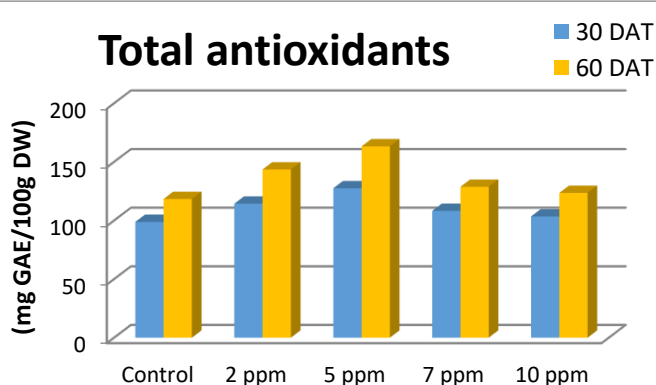
Soluble Protein Content



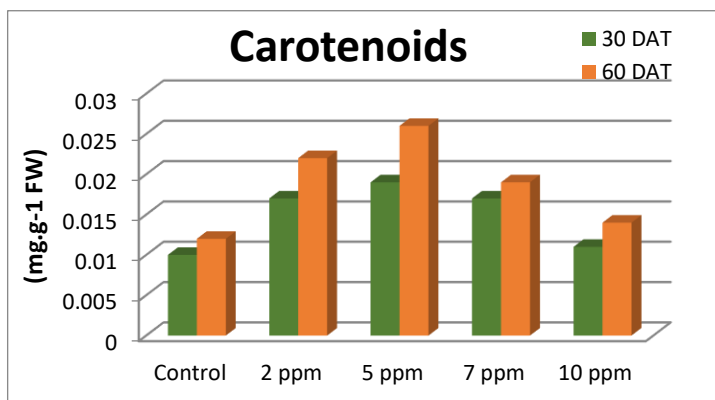
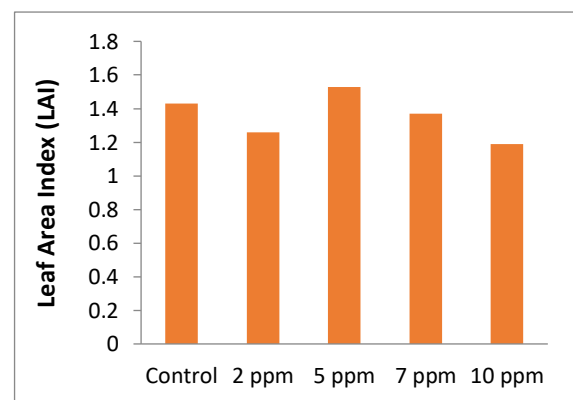
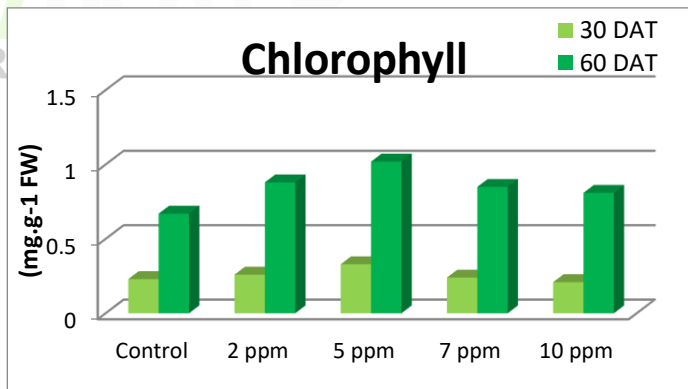
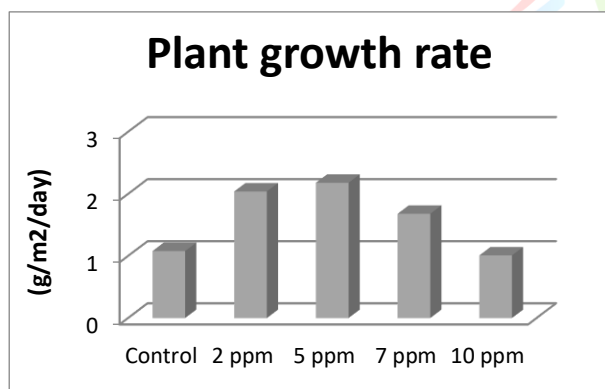
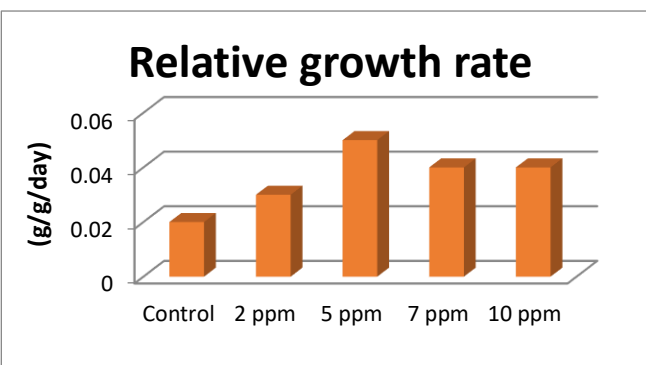
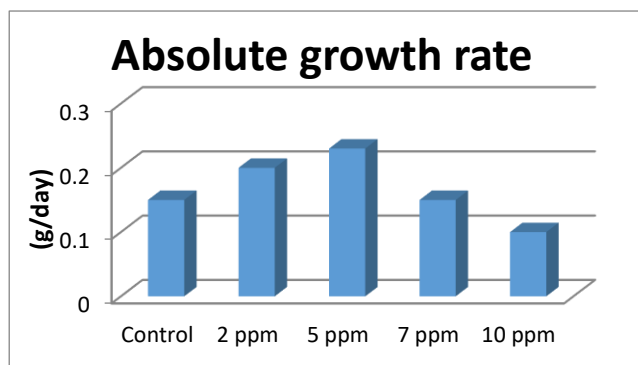
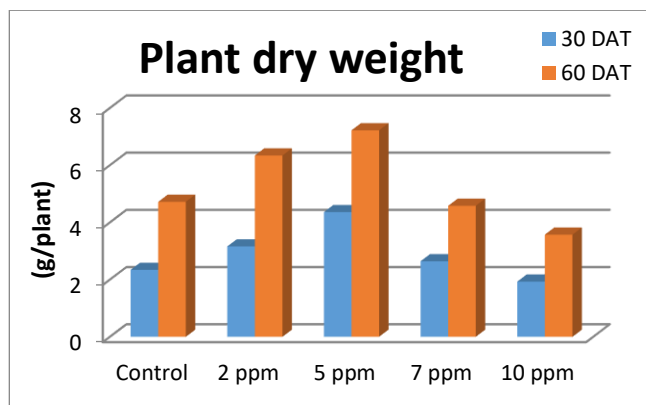
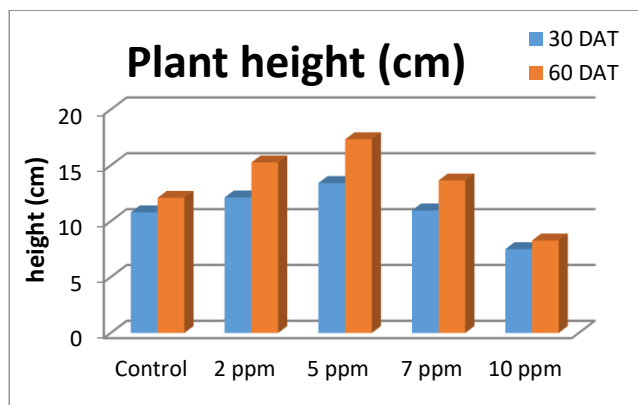
Phenols

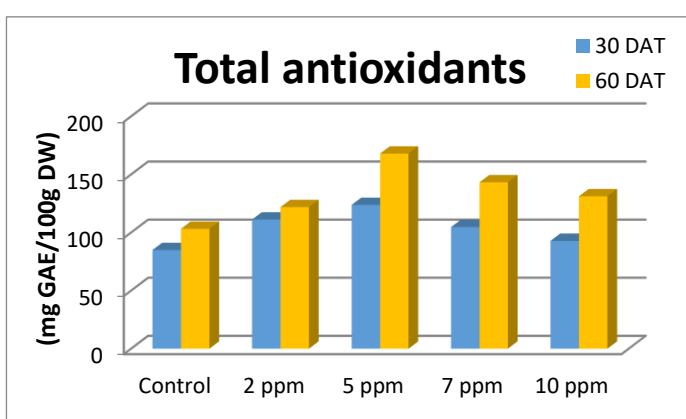
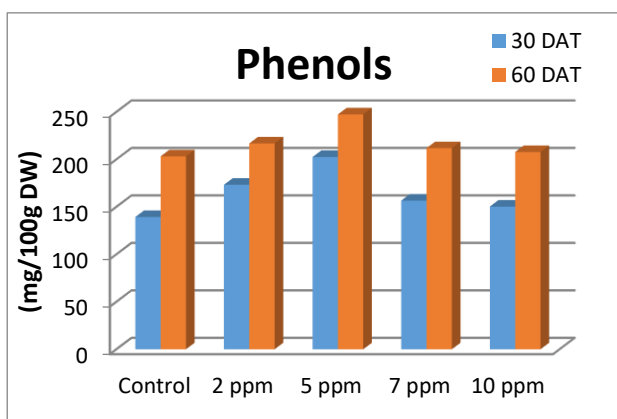
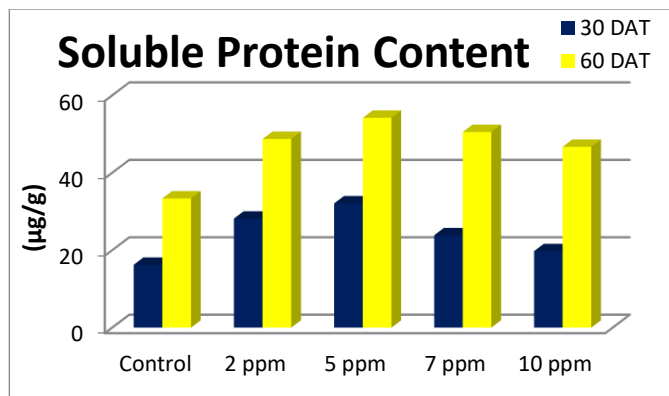
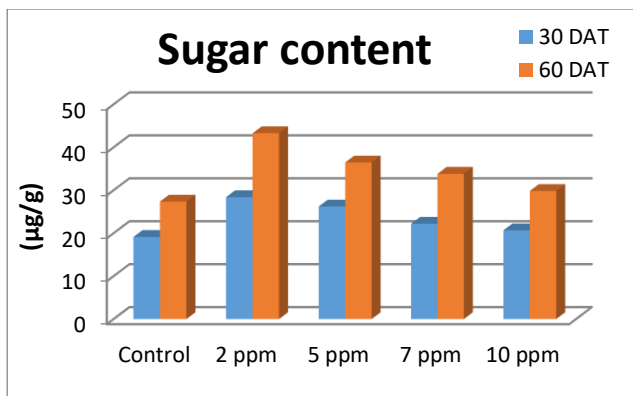


Total antioxidants

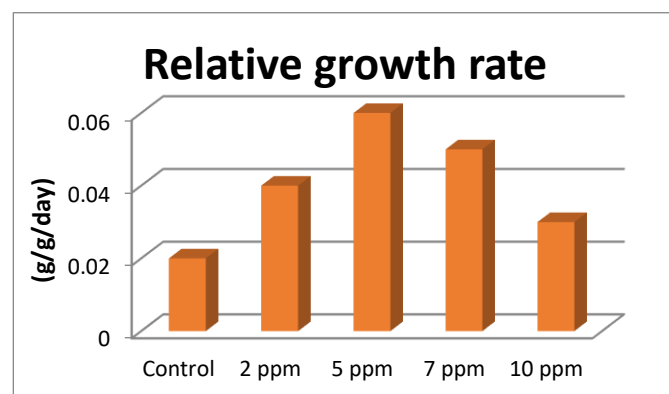
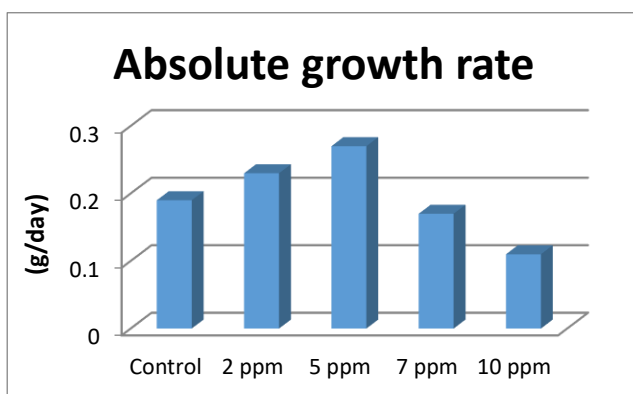
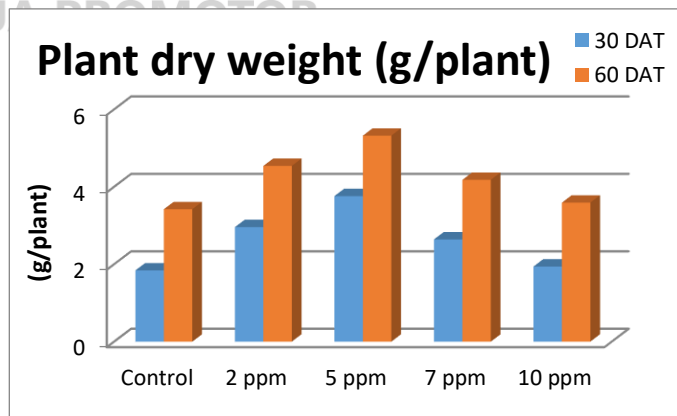
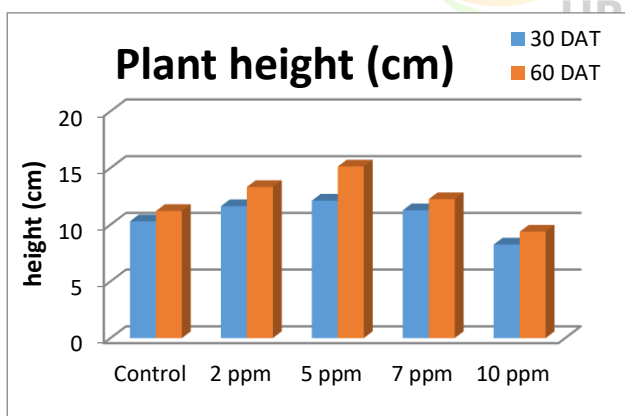


EXPERIMENTAL FINDINGS AVICENNIA MARINA SEEDLINGS

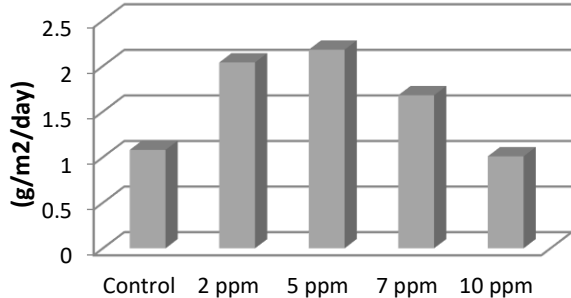




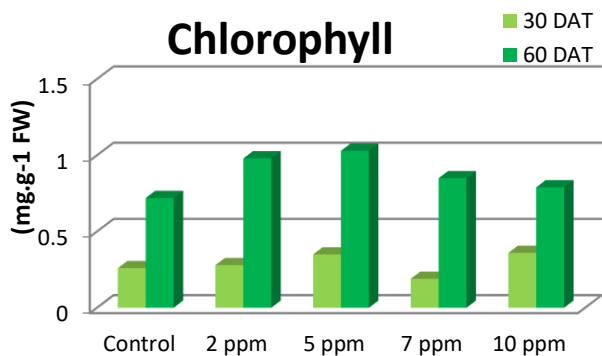
EXPERIMENTAL FINDINGS AVICENNIA ALBA SEEDLINGS



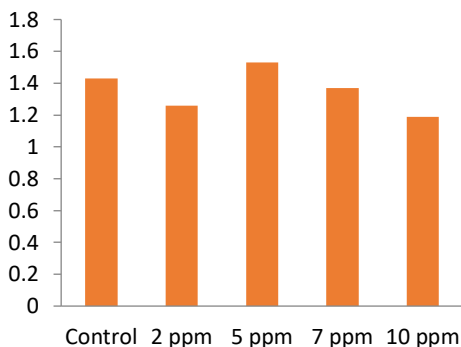
Plant growth rate



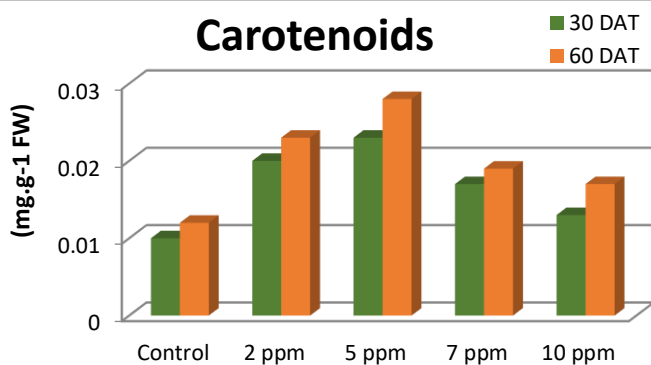
Chlorophyll



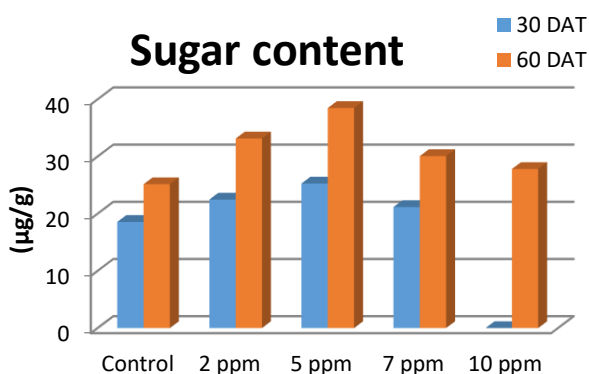
Leaf Area Index (LAI)



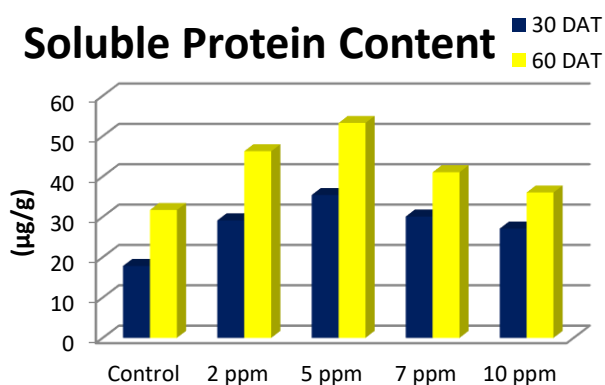
Carotenoids



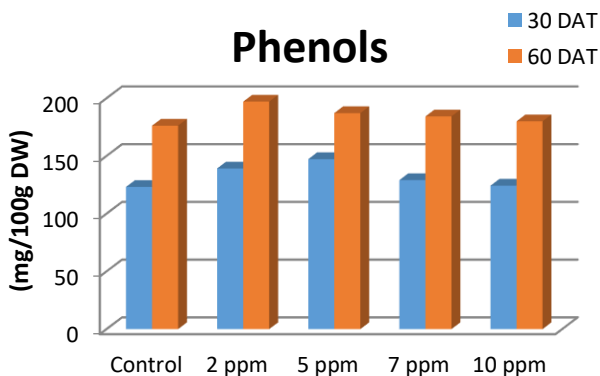
Sugar content



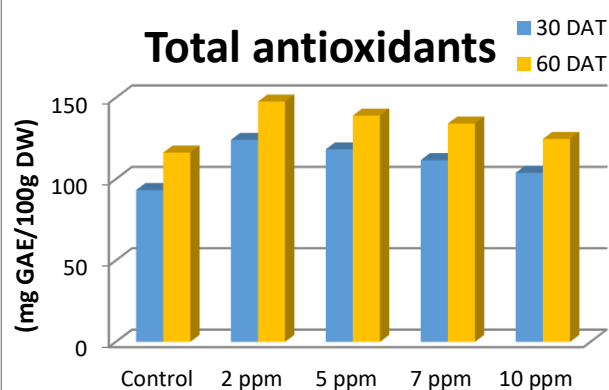
Soluble Protein Content



Phenols



Total antioxidants



Conclusion

In conclusion, the application of Vikalp Urja at 5 ppm proved to be the most effective in promoting plant growth, photosynthesis, and biochemical attributes compared to higher concentrations of 7 ppm and 10 ppm. The findings suggest that 5 ppm is the optimal concentration for enhancing plant performance, while higher doses may not provide additional benefits and could even have inhibitory effects. This study highlights the importance of precise dosage optimization for maximizing the efficiency of Vikalp Urja in agricultural and horticultural applications. The finding also suggests that early spraying decreases the mortality rate in the studied mangroves.

