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Assessment of Air Pollution Index in Kebbi State, Allero Local Government Area

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Abstract:- Climate change and air pollution are one of the major diseases in the field of code design and construction that affect people and human health. The aim of this study was to evaluate the biochemical composition, total chlorophyll and ascorbic acid content of cherimoya, finger almond, neem, mango and fig. The results of the study showed that the total chlorophyll content of the control plants varied between 30.20 ± 0.03 (mg/g) and 15.58 ± 0.19 (mg/g), while the total chlorophyll content of the control plant was 21.65 ± 0.42 (mg/g). mg/g). It turns out the problem is different. The test results showed 10.73 ± 0.03 (mg/g) to 10.73 ± 0.03 (mg/g). The chlorophyll content of red leaves was the lowest in the experimental and control groups, at 10.73±0.03 and 15.58±0.19, respectively. Compared to the control results, the AAC results showed that neem had the highest ascorbic acid content (9.43 ± 0.15) and cherimoya had the highest ascorbic acid content (5.50 ± 0.01). The ascorbic acid content of palmate baobab was the lowest at 5.43±0.02 and 4.97±0.02 in the experimental and control groups, respectively. Overall, this study shows that measuring plant performance can be a useful tool in selecting suitable trees. Based on the results of this study, it is suggested that further research is needed to identify plants with higher phytoremediation potential.

Keywords:- *Pollution, Tolerance, Plant Biochemistry and Climate Change.*

I. INTRODUCTION

Air pollution is an important environmental problem facing the world today, rapidly increasing with population growth due to the decrease in natural vegetation. Similarly, the growth and efficiency of transportation is also increasing (Gulia et al., 2015; Karmakar and Padi, 2019). Industry and transportation also contribute to pollution in cities around the world. A similar report by Manisalidis et al., 2020 found that air pollution will have a major impact on climate change, population and human health and will become a major disease in developing countries. Green plants can do this. It can be used to reduce pollution, thereby reducing environmental pollution, climate change and public health. Green plants are classified into sensitive, medium and high pollution types (Bharti et al., 2018).

II. METHODOLOGY

Percentage of total chlorophyll content. Chlorophyll content was determined according to the method of Barnes et al. (1992). DMSO is used to extract chlorophyll. Add 0.05 g of fresh weight (FW) powder to 5 cm3 DMSO sample and incubate in a water bath at 60-65°C for 1 hour. After filtering and cooling the extract, transfer 5 cm3 of the extract to a test tube. Read the absorbance of the extract at 665 nm and 648 nm using a spectrophotometer.

To measure the chlorophyll content of a leaf, use the following formula: Chlorophyll (a) (mg/g FW) Chlorophyll (b) (mg/g FW) = (14.85 × A665 -5.14 × A648) (25.48 × A648 × - 7.36 × A665) = 444 mg (g F.W. 7.49 × A665 20.34 × A648)

Transfer approximately 1 g of crushed ascorbic acid leaves to a test ube. Then add 4 cm3 of oxalic acid and ethylenediaminetetraacetic acid solution into a test tube, then add 1 cm3 of orthophosphoric acid, 1 cm3 of sulfuric acid (5%), 2 cm3 of ammonium molybdate (5%) and 3 cm3 of distilled water. . Let the solution stand for 15 minutes and then measure the absorbance at 760 nm using a spectrophotometer. Ascorbic acid concentration (mg/cm3) was obtained from the ascorbic acid standard curve and converted to ascorbic acid content per gram of dry weight.

III. STATISTICAL ANALYSIS

Statistical analysis, Microsoft Excel 2013 and SPSS statistical software version 21.0. When used, all samples were analyzed in duplicate and expressed as mean ± SE. One-way analysis of variance (ANOVA) was used to test for significant differences between samples.

IV. RESULT

➢ *Total Chlorophyll*

The total chlorophyll content of the selected plants was obtained from Table 1. The samples used ranged from 15.58 ± 0.19 to 30.20 ± 0.03 mg/g, and the result was 10.73 ± 0.03 ± 21. G. The chlorophyll content of red leaves was the lowest in the experimental and control groups, at 10.73 ± 0.03 and 15.58 ± 0.19 mg/g, respectively.

➢ *Ascorbic Acid Content*

The ascorbic acid (AAS) content in the leaves of selected plants was tested and determined. . The maximum content in the control plot was 5.50 ± 0.01 mg/g. In both regions, the lowest ascorbic acid content was found in finger almonds with values of 5.43 ± 0.02 and 4.97 ± 0.02 in the experimental and control regions, respectively.

Table 1: Total chlorophyll content of leaves of the plants

Plant species	Chlorophyll content (mg/g) Experiment	Control
Annona muricate	15.44±0.13*	21.73±0.25*
Adansonia digitate	10.73±0.03*	15.58±0.19*
Azadirachta indica	18.42±0.06	19.04±0.08
Mangifera indica	21.65±0.42*	30.20±0.03*
Ficus polita	15.99±0.03	19.03±0.04

* Significant difference between experimental and control ($p < 0.05$). Data showed as mean ± s ($n = 3$)

Table 2: Ascorbic acid content of plant leaves species

Plant species	Ascorbic acid (mg/g) Experimental	Control
Annona muricate	6.11±0.02	5.50±0.01
Adansonia digitate	5.43±0.02	4.97±0.02
Azadirachta indica	9.43±0.15*	5.47±0.05*
Mangifera indica	5.57±0.15	5.33±0.42
Ficus polita	5.47±0.06	5.06±0.11

* Significant difference between experimental and control sites ($p < 0.05$). Data showed as mean ± s ($n = 3$)

Expressed as mean ±s ($n = 3$). Chlorophyll is the main pigment in **the photoreceptors of** photosynthetic plants and also **influences** plant growth and productivity **(Pavlovich** et **al.,** 2014). The total chlorophyll content of plant leaves was **estimated to range from** 19.04 ± 0.08 **to** 12.48 ± 0.12 **(mg/g).** According to the model, Adansonia digitalata has the lowest chlorophyll **content. Controlled** and **experienced 15.58±0.19. Point 12.488-0.12** (mg/g) (Table 1). Ascorbic acid in plant leaves has many functions, including cell wall synthesis, cell **division,** photosynthetic carbon fixation, and **is an excellent** reducing agent, **preventing** the accumulation of reactive oxygen species (SO2, H2O2, O2- and OH) in plants, thereby increasing **crop yield.**

The tree tolerates pollution **well** and **ensures the stability of chloroplasts** in stressful situations. It is present in all growing parts of **the plant** (Rai and Panda, 2014). **The ascorbic** acid content in neem is **higher:** 9.43± **0.15,** control value - 5.47 ± 0.05*, custard - 6.11 ± **0.02,** control value - 5.50 ± **0, 05*. It** is 0.01. Based on data **published in 2016,** Rai reported that pollution can **produce** reactive oxygen species and increase ascorbic acid content in plants. In this study, neem had the highest ascorbic acid content, indicating **resistance to contamination.** In contrast, Adansonia digitalata has the lowest ascorbic **acid content and** the plant's sensitivity to pollution has been studied.

V. CONCLUSION

Studies show that assessing **a plant's** future can be a good tool for **it. Choose.** Some plants are classified according to their sensitivity and tolerance to various pollutants. Current research shows that neem **trees** and **mangoes** are the most suitable sinks and **major pollutants.**

Recommendations Therefore, based on the above **findings, we make** the following **recommendations: This section** requires further research to identify plants with higher phytoremediation potential. Describe the structure of the compound responsible for the **activity.**

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