Plants as Indicators for Climate Justice

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***Abstract*—**Plants are indicators for climate justice. Pollution burden on environment is going to increase day by day due to which nutrition of plants is going to alter automatically. Changing in phenotype of plant is alarming condition which can be faced our next generation seriously. Among pollution burden, vehicular pollution also harm plants mechanism as unbalance carbon causes the immature bonding of carbohydrates and proteins.

***Pollution burden*—**increasing of pollution at alarming condition.

Nutrition deficiency in plants— incomplete bonding of carbohydrates and proteins in plants.

I. Introduction

Technology invasion always bring some sort of changes in the environment but abatement technology always compete the pollution burden on environment. Sustainability is the way to appreciate the resources and make the people do resistive on this planet against number of climatic change challenges. Mechanized plantation and good nutrition value can bring the people so healthy. Pollution burden always make the changes in the phenotype of plants which cause deficiency in nutrition value automatically

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Pollution burden make an ark around the plants by which plant cannot make proper bonding of proteins and carbohydrates. The incomplete proteins and carbohydrates in the plants are alarms for climate justice. Carbon dioxide increment in the environment make the heat cloud around the plants which cause limited nutrient value plants and this is due to unfavourable conditions of photosynthesis. Pakistan is near to equator where climatic conditions are considered extreme. Rich floral kinds exist here but due to climatic changes, plants are victim and ultimately are making the human life so vulnerable.

The Lahore city of Pakistan is experiencing number of issues regarding climatic change and their results are in form of changed phenotype of plants. There is no proper bonding of proteins and carbohydrates in the plants. The research was conducted on the native flora like Ficus Religiosa and Amaltas. The study was purely on the road sides plants although they are planted for maintain climatic conditions.

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II. Methodology

A. Data Collection

Data was collected randomly to check the effects of climate change along the roadside. The samples (leaves) were collected at the site where vehicular frequency was 45 per five minutes. Data was collected from two resources that were Amaltas (Acasia Fistula), Peepl (Ficus Religiosa). Data was collected from nine points.

B. Ingredients Determination in Plants by Climate Change

Samples were collected to determining the effects of plants by climatic changes. The ingredients of plants were Proteins (aspartic acid, glutamic acid, serine and valine) and non structural carbohydrates (glucose, sucrose and fructose). These ingredients are directly effect by the climatic change and unable to make the proper bonding of protein and carbohydrates in photosynthesis and for any metabolism.

C. Results & Discussions

Results showed pollution had bad impacts on the bonding of proteins and carbohydrates and ultimately plants had shortage of nutritious. Climatic effects are going to disturb all phenotype and internal mechanism of plants by which nutritional value and age of plant leads towards falling off. The phenotype of plants is going to alter due tom climate change.

References

[1]. Norikoshi, R. Imanishi, H. &Ichimura, K. (2008). A Simple and Rapid Extraction Method of Carbohydrates from Petals or Sepals of Four Floricultural Plants for Determination of Their Content. J. Japan. Soc. Hort. Sci, 77, 289–295.

[2]. Tripathi, A.K. &Gautam, M. (2007). Biochemical parameters of plants as indicator of air pollution. Journal of environmental biology, (28), 127-132.

[3]. Raessler, M. (2011). Sample preparation and current applications of liquid chromatography for the determination of non-structural carbohydrates in plants: Trends in analytical chemistry. (30), 11.

[4]. Miller, P. Parmeter, C. Martinez, W. (1969). Ozone dosage response of ponderosa pine seedlings. J. Air Pollut. Control Assoc, 19, 435–438.

[5]. Mudd, J. B. Kozlovski, T.T. (1975). Responses of Plants to Air Pollution. Acad. Press, New York-San Francisko-London.

[6]. Malhorta, S. S. (1976). Effect of sulphur dioxide on biochemical activity and ultrastructural organization of pine needle chloroplasts. New Phytol, 76, 239–246.

[7]. Carlson, R. W. (1979). Reduction of photosynthetic rate of *Acer*, *Quercus*and *Fraxinus*species, caused by sulphur dioxide and ozone. Environ. Pollut., 18, 159–170.

[8]. Lorenc-Plucinska, G. (1982). Effect of sulphur dioxide on CO2 exchange in SO2 tollerant and SO2 succeptible Scots pine seedlings. Photosyntetica, 16 (1), 140–144.

[9]. Huber, U. Majors, R. E. (2007). Principles in Preparative HPLC. Agilent Technologies INC, 2, 27-45.
[10]. Hansen, J. Moller, J. (1975). Percolation of starch and soluble carbohydrates from plant tissue for quantitative determination with anthron. Anal. Biochem, 68, 87–94.
[11]. Dugger, W.M. Jr, J. Koukol, R.L. Palmer. (1966). Physiological and biochemical effect of atmospheric oxidants on plants. J. Air. Pollut. Control Assoc, 16, 467–471.
[12]. Miller, P. R. Parmeter, R.J. Jr, B. H. Flick, C. W. Martinez, 1969. Ozone dosage response of ponderosa pine seedlings. J. Air Pollut. Control Assoc, 19, 435–438.
[13]. Barnes, R. L. (1972). Effect of chronic exposure to ozone on soluble sugars and ascorbic acid contents of pine seedlings. Can. J. Bot, 50, 215–219.
[14]. Malhorta, S. S. (1976). Effect of sulphur dioxide on biochemical activity and ultrastructural organization of pine needle chloroplasts. New Phytol, 76, 239–246.
[15]. Lorenc-Plucinska, G, (1982). Effect ofsulphur dioxide on CO2 exchange in SO2 tollerant and SO2 succeptible Scots pine seedlings. Photosyntetica, 16 (1), 140–144.
[16]. Youngner, V. B. Nudge, F.J. (1980). Air pollution oxidant effects on cool-season and warmseason turf grasses. Agron. J. 72, 169–170.

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