

Carbohydrate content modifications in plant due to Electromagnetic Wave Exposure

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Abstract: With continuous increase in electronic devices for wireless communication significantly contributes to Electromagnetic Waves emission. There has been significant research in last decade to analyze the low frequency and high frequency wave effects on plant tissues in medicinal plant lemon grass are examined after small and long Electromagnetic Wave exposure. It has been significantly noted that Carbohydrate contents are significantly reducing in both long term and short term EM wave radiations.

Key Words: Carbohydrate contents; Electromagnetic Wave exposure, plant lemon grass, harmful effects.

1. INTRODUCTION & LITERATURE REVIEW:

It has been observed that global ambience is carrying significant amount of electromagnetic waves in environment. In technological world dependency of corporate and individuals on wireless communication is quite high. Apparently, there has been significant increase in cell tower sites to meet the user demand. The cell sites increase is greatly dependent on network & user capacity. The mobile phone utilization is expected to reach around 5 billion in 2019 (Statista , 2017). In modern era, advance electromagnetic wave emitting electronic devices being utilized therapeutic purpose has to be really focused (Yano et al., 2004). The Electromagnetic Wave is possessing two fields : An Electric & A Magnetic Field. E field orientation is perpendicular to H field. The wave propagation is in perpendicular direction to E field and H field. Both field gives specific biological effects. For instance, continuous mobile phone use can give per second pulse in order to few microgauss (Russello et al. 1996; Pazur et al. 1992). The plants can possibly have multiple Electromagnetic effects on its day to day functioning as shown in figure 1.

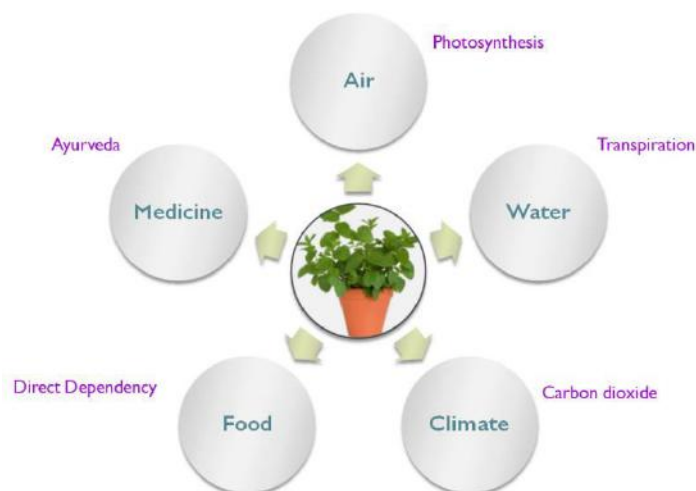


Figure 1: Plant Contribution and Human Dependency

Multiple reports have been presented of harmful effects of electromagnetic waves on animal tissues of counting humans being. Same way, other living organisms also exposed and thus certainly affected by different radiations of electromagnetic waves which has not been investigated extensively. They certainly react upon exposure of EM waves, which has been observed successfully (Upadhyaya et.al, 2011; Upadhyaya et al., 2012). The results show the deteriorating effect of EM Wave exposure on medicinal plant lemon grass.

2. RESULTS:

Sample of lemon grass	Time duration of exposure in hours	Starch Concentration ($\mu\text{g/ml}$ tissue extract)
Electromagnetically unexposed	N/A	65.38

Electromagnetically exposed	24 hours	58.20
	48 hours	47.03
	72 hours	28.39
	160 hours	13.82

As it is evident from results that electromagnetically exposed plants are heavily affected. The starch concentration is significantly reduced from electromagnetically unexposed plants. This proves the original hypothesis.

3. CONCLUSION:

Majority of radiation standards approved by countries across the globe are focusing on Specific Absorption Rate (SAR) of human body. There is little work done on analyzing the radiation effect on plant body. Human dependency on plants is quite high and the reduction in plant quality shall deteriorate food quality of humans and animals especially vegetarians.

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