PROJECT ID :

PROJECT TITLE : HYDROPONIC PLANT

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a. Introduction

The science of growing plants in nutrient rich water is hydroponic. The research will examine whether the plant grow better is normal water or the nutrient rich water. The research will find out plant grow better in nutrient rich water.

b. Selection of problem and background informations.

Environmental harm from chemical use, water depletion, unfertile soil, land crisis health risk from pesticides.

A plant with roots in soil take long time to extract its nutrition from the soil conversely, if a plant's roots are in nutrients rich water, it takes less time to extract nutrient and grow faster.

C. Objective

◇ Can plant grow without soil?

◇ In which water plant grow better?

◇ Did pH level of water would affect the growth of plant?

D. Hypothesis

Plant will grow faster in nutrient, rich water

E. Procedure

Experimental Procedure

Independent variable: nutrients solution composition pH level

Dependent variable : plant growth measure by leaf size

Material

⇒ plastic tray

⇒ water bottle

⇒ Container

⇒ pH detecter

⇒ Water nutrient solution

⇒ Tissue paper

⇒ Seeds

⇒ Measuring cup

⇒ Scale in cm

⇒ Calenders

⇒ Hand book

Procedure:- Nutrients water + seed, Normal water+ seeds ,Tissue paper

Preparation of Nutrient solution

A. Take 1 litre of RO water and 5ml of concentrated micronutrient solution and add5ml of concentrated macronutrient solution.

B. Take a plastic tray, spreat tissue paper, put some seeds of lettuce, Sprinkle some nutrient water.

C. After someday place the sprouted seeds tray on the nutrient water containers. Add water nutrients and check pH level constantly.

D. Observe daily the growth of plant by checking pH level and replace nutrient water.

Risk and safety:-

The need of constant monitoring, pH level and quantity of water nutrients solutions.

G. Data analysis:-

Date table to keep track weekly plant and leaf growth.

HYDROPONIC PLANT GROWTH EXPERIMENT	Nutrient rich water			No nutrient water			pH level
	Date/ Day	Date/ Day	Date/ Day	Date/ Day	Date/ Day	Date/ Day	
Measurement							
Number of leaves							
Length of largest leaf (mm)							
Width of largest leaf (mm)							

G. Bibliography:-

Pmc.ncbi.nih.gov
BIO INFORMATIOM
www.Sciencebuddies.org