



## EFFECT OF SOFT DRINKS FOR SEED GERMINATION AND PLANT GROWTH

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### ABSTRACT

We are living a world of food poisoning and food adulteration. During our daily life more than 95 % people are consuming different kinds of soft drink. Soft drinks are the commonly using drinks in their daily life. The present investigation is passing light on the effect of soft drinks in seed germination and plant growth. The results indicate that effect of soft drink for seed germination and plant growth has negative effect

**KEYWORDS** : Soft drinks, Seed germination, Plant growth

### INTRODUCTION

Soft drinks are non-alcoholic water-based flavored drinks that are optionally sweetened, acidulated, carbonated and which may contain fruit, fruit juice and/or salts; their flavor may derive from vegetable extracts or other aromatic substances. They constitute a defined and homogenous range, designated by a generic denomination and utilizing a single common list of additives, such as fruit juices and nectars, dairy drinks, mineral waters, etc. (Johnson and Kumar. 2003)

Kumar *et al* (2007) had studied that the cytogenetic effects of food preservative i.e. Potassium metabisulphite on root tip cells of *Allium cepa* L. The root tips have been treated with a series of concentrations, ranging from 25 to 150 g/ml for 1, 3, 5, 7 and 9 h. The results indicate that the food preservative has reduced mitotic division in *A. cepa* compared with the respective control. The percentage of Mitotic index has decreased with increasing dose and time. Chromosomal abnormalities increase with increasing concentrations of the test chemical and the longer period of treatment. We have found that chromatid break and multiple breaks increase with dosage. Kayraldiz *et al.* (2001) had investigated that the effects of sodium meta bisulfite (SMB) on mitosis in *Allium cepa* L.

### Objectives of the study

1. Study the effect of soft drinks on seed germination
2. Study the influence of soft drinks on plant growth
3. Study the relation of seed germination and plant growth
4. Analyze the present study result compare it with ill effects on human health

### MATERIALS AND METHODS

The present study is aimed at to analyze effect of soft drinks on seed germination and plant growth. For the present investigation experimental method is adopted. The effect of soft drink was tested by selecting six soft drinks such as Coca cola, Pepsi, Sprite, 7up, Appy fizz, Mirinda. For the experimental study seven pots containing potting mixture were selected one pot each is used as control and six were labeled as experimental group. Seed germination was calculated by sowing pea plant seeds and applying soft drink instead of water in six pots and for the control group water is used. The soft drinks were applied regularly like that of water for the experimental group. For testing the effect of soft drinks for plant germination the same method was also adopted in one month old pea plant. The parameters such as seed germination, Colour change of the cotyledons, plant growth, leaf colour, rate of leaf fall, percentage of dryness were analyzed by using common methods.

### OBSERVATION

The main aim of the present investigation is to testify the effects of soft drinks for seed germination also to determine its effects on plant growth. The result indicate that seed sowed in control pot only showed normal growth and other pot recorded negative result. After 30 days the sowed seeds were take out and washed in fresh water the colour of the seed varied from pale red- rose- white. This

indicates the effect of soft drinks on seed coat. The results of the experiments also revealed the adverse effects of two soft drinks in plant. The pot which is treated with tap water showed progressive increase in height i.e., 40-93.1 cm for 31-80days, mean while plant grown in other pots showed no remarkable increase in height For the parameter leaf colour is concerned the plant grown in control pot supplied with tap water showed dark green and plant grown in experimental pots showed pale yellow coloured leaves. For rate of leaf fall is concerned control plant had no abnormal leaf fall mean while experimental plants showed an average of 0.5% leaf fall per day. For the parameter plant dryness the pot supplied with tap water the percentage is nil and the experimental plants showed 60 and 70 % subsequently. In short the soft drinks such as Coca cola, Pepsi, Mirinda, Sprit, 7Up, Appe Fizz on seed germination and plant growth has no effect

### DISCUSSION

Danzell and Greenberg (2002) studied the difference in growth rates, plants given carbonated water not only grew faster but also developed a healthier shade of green in comparison to plants given tap water. Garcia (2002) in his experiment he got three groups of plants and gave one group Coca-Cola, one group water, and one group nothing. His results were that the Coca-Cola plants died quicker, grew smaller, and did not grow more leaves. The plants that were given water stayed about the same height and grew a few more leaves. Grant (2014) basically, the end conclusion is that sugary sodas do not aid in a plant's development and, in fact, can retard the absorption of nutrients and water, resulting in death. Shields (2014) studies the effects of standard Coke or Pepsi will have adverse effects on plant growth and will eventually kill the plant.

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