

An Effect of Onion Peel Water on Various Plant Disease and Plant Growth

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Abstract: The Bulb onion [*Allium Cepa*] is another name for the onion [*Allium Cepa*]. It is a member of the Plantae Kingdom. The most common Biennial or Perineal plant is the onion. Antioxidants, antibiotics, and a variety of other activities are all found in onions. The onion can also be used as a fertilizer. According to several research, the fleshy or edible section of the onion contains a variety of functions that any fertilizer would demonstrate.

The main goal of this research is to investigate the effect of onion peel water as a fertilizer for making plants disease resistant, increasing soil fertility, and promoting plant growth. This research on onion peels, also known as external scales, contributes to the agricultural field. This research aids in the enhancement and improvement of domestic gardening skills.

INTRODUCTION

As we know that human and living beings need the food and nutrition to stay healthy the same is with the plants which need various nutrients to Grow properly. Fertilizers are the substance or compound which are added or introduced to the soil to improve plants growth and yields. Fertilizers can also be applied on plants for the purpose of growth. The Role of Fertilizers is to enhance the fertility of soil, and Treat the various plants diseases and many more.

In Various food Industries and restaurants, the Onions are used on wide range. So here the dry onion peels are considered as the waste and it is been discarded. So, if this waste is not discarded properly then it can cause harm to environment. So, we can reuse that peel of onions as fertilizers instead of discarding it. The Onion Peels contains a greater number of specific phytochemicals as compare to fleshy and edible part.



Figure 1:-FERTILIZERS

DIFFERENT FORMS OF FERTILIZERS**GRANULAR**

- This are added or mixed with the soil .

POWDERED

- This are in powder form and added to water and then used as fertilizer.

LIQUID

- This are generally concentrated but are diluted using water .

ONION [*Allium Cepa*]

Onion is the Vegetable Cash crop Which is used widely over the world. Onion in India is produced on large scale. Onion is widely used in making Salads, Vegetables, Curries, Pickles and many more. Onion also has a beneficial Medicinal Effects. Onion was considered as a Medicinal plant in ancient times.

Shape of Onion Varies from Slightly Flat to Globular. Onion Mainly is of 3 Color range i.e., WHITE, YELLOW and RED. In India most of population prefer the use of red onion.

**Figure 2:-ONIONS****Taxonomical Classification of Onion**

KINGDOM	Plantae
CLASS	Angiosperms
SUBCLASS	Monocots
ORDER	Asparagales
FAMILY	Alliaceae
SUBFAMILY	Allioideae
GENUS	<i>Allium</i>
SPECIES	<i>A.cepa</i>
BIONOMIAL NAME	<i>Allium cepa</i>

PHYTOCHEMICAL CONTENT OF ONION

Onions are rich in vitamin B6, calcium, magnesium, phosphorus, Vitamin C, Potassium. Onion is a rich source of Flavonoids. Onion contains various flavonoids like Quercetin, Kaempferol, and Isorhamnetin. Quercetin is the major flavonoid present in this plant. Onion also contains the Saponin which is steroidal in nature which helps to prevent cholesterol absorption from the intestine.

Other Phytochemicals present in the Onion are Allinin, alliin. Quercetin is a major flavonoid which contains 5 hydroxyl groups which are lipophilic in nature. The dry peels of onions contain more amount of Quercetin. When the quercetin undergoes Glycosylation, its hydrophilicity increases which helps to inhibit the bacterial growth. This Flavonoids present act as a Antiviral, Antimicrobial, Anticancer, Anti-inflammatory agents.

Onion contains polyphenols and also a good source of Biotin and Dietary fiber. Onion also shows various Pharmacological activities. Quercetin also acts as an Antioxidant. The Flavonoids like Quercetin they scavenge the particles in the body known as Free Radicals which damage the cell membranes. Quercetin helps to increase or enhance the plant growth, facilitate various Physiological processes like germination, growth of pollen grains, photosynthesis, uptake of nutrients and many more. Quercetin is also responsible for the Taste and smell of the fruits and flowers and also for the color development in plants. Flavonoids also prevent the plants from Insects, pest etc.

VARIOUS PLANT DISEASE OR INFECTION

Plant is infected with various means like pests, nectars, insects, and many more. Various Bacterial, Fungal, Viral, Microbial infections Are seen in the Plants. Due to Various condition like change in weather, the poor fertility of the soil etc. this all affects the plant growth and tends to decrease the plant yield.

Plant disease can be Infectious and Non-infectious which depends on the causative agents. The infections in plants is seen by the presence of the symptoms like mentioned below

1. **Wilting:** - Here the plants lose their turgidity, and becomes flaccid.
2. **Discoloration:** -This occurs due to the reduce amount of chloroplast. Commonly the color change from green to yellow is seen.
3. **Deformation:** -Here the leaves undergo wrinkling and twisting.
4. **Necrosis:** - Partial or complete death of plant tissues due to the effect of parasite.
5. **Hypoplasia or Atrophy:** - Here there is the inhibition of Plant growth. There is the decrease in the size of cells and organs.
6. **Mould:** - This is stated as the fungal damage of plant.
7. **Die-back:** -This states the dying of plants from the tips of branches and stems in backward direction.

METHODOLOGY TO PREPARE THE ONION PEEL WATER

Requirements: -Dry peels of onion, water and a jar

Procedure: -

1. Initially take the enough amounts of dry onion peels which are collected from various days.



Figure 3:- ONION PEELS

2. Then take a jar add these peels into that and add 1 Liter of water to it.
3. Then cover the jar using lid and keep it in a shade for 24-48 hours.
4. Then after 24-48 hours with the use of Strainer Strain the Mixture of Onion and water.
5. Keep the strained Liquid in clean jar and The Solid retained on the Strainer can be used as the Compost for the soil.
6. Once the Onion peel Water is made it can be use for 25-30 Days.



Figure 4:- PREPARED ONION PEEL WATER

7. For application of this Onion water on the plants, take 200-300 ml of Onion peel water and dilute it using 1 liter of Water.
8. You can apply this water in to ways, we can use its by POURING onion water directly to the soil or we can spray this onion water on the infected parts of plants or can be sprayed on whole plant.
9. Use this Onion water for plants after every 6-7 days for good results.

RESULTS: -

OBSERVATIONS IN THE SAMPLE PLANTS

For this study of Onion Peel Water, the plants Observed were

1. TULSI [*Ocimum tenuiflorum*]
2. SHEVANTI [*Chrysanthemum*]
3. GOKARNA [*Clitoria ternatea*]

1. OBSERVATIONS IN TULSI PLANT (*OCIMUM TENUIFLORUM*): -

Initially in Tulsi plant there was the Presence of White colored Fungal infection on the stem part which resulted in the inhibition of plant growth. Due to this growth of plant was stopped. By Introducing the onion peel water on the infected parts of plants for 21-25 days resulted in Decrease of white colored fungal infection, and also resulted in generation of new green leaves at the tip which states the regrowth of plant started.

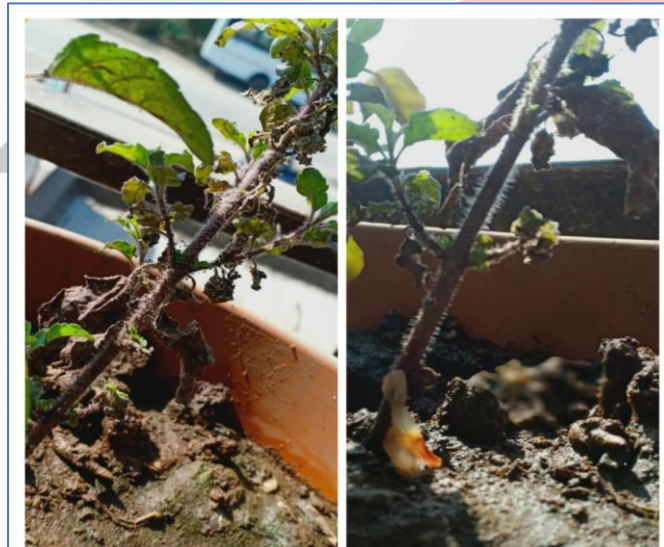


Figure 5:- INFECTED TULSI PLANT WITH FUNGAL INFECTION



Figure 6:- GROWTH OF NEW GREEN LEAVES AND REGROWTH OCCURING IN OCIMUM TENUIFLORUM AND HERE IN OTHER IMAGE REDUCTION OF FUMGAL INFECTION IS SEEN

2. OBSERVATION IN GOKARN PLANT (*CLITORIA TERNATEA*): -

At Initial condition Shedding of leaves was observed. Along with this Discoloration of leaves was also detected. The color of leaves was yellow. Then by introducing the onion peel water to gokarna plant for 25-30 days there was regeneration of leaves was resulted on the stem part and branches. There was a growth of New Flowers.

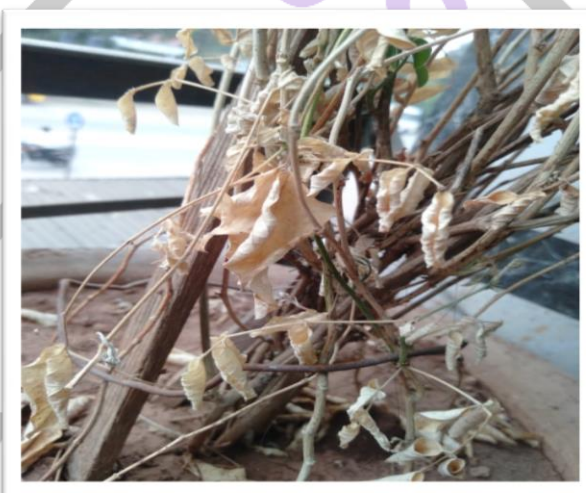


Figure 7:- INITIAL CONDITION OF CLITORIA TERNATEA PLANT (DISCOLORATION OF PLANT)



Figure 8:- POSITIVE EFFECTS OF ONION WATER ON CLITORIA TERNATEA PLANT (GROWTH OF NEW GREEN LEAVES, BLOSSOMING OF FLOWERS)

3. OBSERVATION IN SHEVANTI PLANT(*CHRYSANTHEMUM*): -

Initially it was observed that this plant was infected with black pest which affected the Blossoming of flowers, the leaves went under twisting and wrinkling, there was the presence of brown spots on the leaves which affected the plant growth. When the onion peel water was sprayed on the plant it resulted in positive way, it was observed that there is decrease in the black micro insects which were affecting the plant growth. Full Blossoming of Shevanti flowers was been Noticed in the plants after the use of Onion Peel water. The decrease in Brown and Black spots intensity which were present on the leaves was also observed in the plant.



Figure 9:- INITIAL CONDITION OF CHRYSANTHEMUM PLANT (BROWN SPOTS ON LEAVES, INFECTED WITH BLACK SMALL INSECTS)



Figure 10:- STEPWISE EFFECTS OF ONION PEEL WATER ON CHRYSANTHEUMUM PLANT



Figure 11:- FULLY BLOSSEMED FLOWERS OF CHRYSANTHEUMUM

DISCUSSION

When ONION PEEL WATER was first introduced, it was used to treat a variety of plant diseases, including those addressed and referenced above. This onion peel water was found to have a positive impact and result on sample plants such as Tulsi (*Ocimum tenuiflorum*), Shevanti (*Chrysanthemum*), and Gokarna (*Clitoria ternatea*). This onion peel water had the effect of reducing the severity of plant infection, increasing plant growth, flowering, and commencing plant regeneration.

Each sample plant was evaluated for 25-30 days in this study. And the initial plant conditions were noted on the first day, and then the onion peel water was introduced, sprayed, and poured to the plants from time to time, and the plants were examined closely on a daily basis, with the Final Results being noted and determined.

CONCLUSION

Onion Peels (External Dry Peels) When used as a fertilizer, it contains a variety of chemical constituents such as flavonoids, phenols, tannins, and others that are good to plants. Previous research has shown that the onion peel has a higher concentration of Quercetin than the fleshy and edible section of the onion. Onion peel water has been shown to aid in the prevention of bacterial and pathogenic infections on plants. It can be inferred from the preceding study, Effect of ONION PEEL WATER on various plants, that Onion peel water helps to boost plant growth and makes the plant disease resistant or free of disease.

Onion's beneficial function as a fertilizer is due to the presence of different phytochemicals in the onion. This research makes a significant contribution to the field of agriculture. Because fertilizers that are readily available and made utilizing natural ways are widely used. This method of making onion fertilizer can help many people improve their gardening skills at home, and it is free of chemicals.

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