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Pet the plant *Solanum xanthocarpum*

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Abstract

Solanum xanthocarpum of family Solanaceae is a wild plant having many medicinal properties, has been in use since ancient time in the herbal medicine for various ailments like cough, asthma, fever, dropsy, heart disease, flatulence, gonorrhoea etc. So it is necessary to domesticate such a useful plant to find easily in need with better quality and free of diseases, harmful elements and compound. If we cultivate them in the soil mixed with wormi compost we get healthy and chemical free plants.

Keywords: *Solanum*, plant, medicinal properties

Introduction

It is evident that the Indian people have a tremendous passion for medicinal plants and use them for a wide range of health related applications from common cold to memory improvement and treatment of poisonous snake bite to cure for muscular dystrophy and enhancement of body's general immunity (Oudhia & Tiwari, 2001) [5]. According to all India ethno biological survey carried out by Ministry of Environment and Forest, Government of India, there are over 8000 species of plants being used by people of India. Now demand for medicinal plants is increasing in both developing and developed countries due to growing recognition of natural products, being non-narcotic and having no side effects. Thus the demand of medicinal plants needs the exploration and cultivation in such a manner so that they can be easily available, affordable and plants being in healthy and disease free condition. Here one plant *Solanum xanthocarpum* (Kateli), which has many medicinal uses like in treatment of cough, dysuria, stone in bladder, drpsy, asthma, catarrhal fever (Calixto *et al.* 1998) [2] has been tried to domesticate.

Materials and Method

1. Few fruits of *Solanum tuberosum* (Kateli)
2. Earthen Pots
3. Plain soil
4. Compost (wormi)
5. Chemical fertilizer (NPK)

First the fruits were dried in the shade and then sown in a pot filled with soil. Now the pot was kept in airy area. It was watered carefully. Seeds germinated and after around fifteen days few seedlings appeared. For experiment three earthen pots were taken. Earthen pots are good for plant growth due to its porosity, which permits good aeration and evaporation thus prevents the plant from decaying due to extra water thus provides natural environmental condition for plant growth (Denef & Six, 2005) [3]. Before plantation the pots were prepared. One pot was filled with plain soil. In the second pot soil is mixed with wormi compost and the third pot soil was mixed with chemical fertilizer. Now the pots were ready for plantation. After one month from the day of sowing the seeds, I took three plants of almost equal size. These plants were planted in the above mentioned prepared pots. Pots were numbered as 1, 2 and 3.

In pot no. 1 plain soil was taken. In pot no. 2 soil was mixed with 200gm of wormi compost and in pot no. 3 soil was mixed with 10 gm NPK. These pots were kept in open area where light was adequate and the area was airy. Plants were watered regularly. After every fifteen days wormi compost was added in the pot no. 2. In pot no. 3, 10 gm of NPK was added once in a month.

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Unwanted weeds were regularly removed. Plants were observed regularly.

After every one month the growth of three plants was noted down. After three months from the date of plantation final growth was observed.

One month later from the date of plantation, growth was observed. In pot no. 1 plant was smaller in size and plant looked weak. Plant of pot no. 2 showed uniform growth. The colour of leaves was dark green and shining and length of internodes was of medium size. Soil of this pot was very light and porous.

In pot no. 3 growth of the plant was also good. The internodes of the plant were long thus plant looked taller. Plant of this pot needed much water than other two plants of pot no. 1 and pot no. 2. The soil was harder than the soil of

pot no. 2.

Although these three plants were kept in the same environmental condition such as sunlight, temperature and humidity, only soil types were different, plants showed different types of growth. Finally after three months it was observed that the plant of pot no.1 grew smaller in size, plant of pot no. 2 in which soil was mixed with wormi compost had excellent growth and development. Length of internodes of the plant was medium in size. Canopy was dense and there were abundance of flowers and fruits also the seeds of such plant had the highest percentage of germination in comparison to seeds of plants of pot no. 1 and pot no. 3. In pot no. 3 plant was taller than the plants of pot no. 1 and pot no. 2. Plant had longer internodes and canopy was sparse. Plant needed much water.

Table 1: Effect of different type of soil on *Solanum tuberosum* after one month from plantation

Pot No.	Type of Soil	Observation after one month from plantation
1	Plain Soil	Plant was smaller in size and no reproductive growth was seen
2	Soil mixed with 200gm of wormi compost	Vegetative growth of plant was very good. Plant looked healthy. Leaves were dark green in colour and shining. Length of internode was of medium size. No reproductive growth was seen.
3	Soil mixed with 10 gm of NPK	Plant was taller in size, length of internode was long. Plant appeared less denser than the plant of pot no. 2. Plant needed much water.

Table 2: Effect of different type of soil on *Solanum xanthocarpum* after two months from plantation

Pot No.	Type of Soil	Observation after two months from plantation
1	Plain Soil	Plant was smaller in size and few buds were seen
2	Soil mixed with 200 gm of wormi compost	Plant looked healthy, reproductive growth was seen.
3	Soil mixed with 10 gm of NPK	Plant was much taller in size, length of internode was long. Plant needed much water. Canopy looked sparse. Soil was little harder than the soil of Pot no. 2. In this pot reproductive growth was also seen.

Table 3: Effect of different type of soil on *Solanum xanthocarpum* after three months from date of plantation

Pot No.	Type of Soil	Observation after three months from plantation
1	Plain Soil	Plant was still smaller in size and looked weak. Few flowers were seen but smaller in size. Overall plant appeared dull.
2	Soil mixed with wormi compost	In this pot the growth of plant was excellent. Canopy was very dense. Leaves looked healthy and shining and larger in size. Abundance of flowers appeared. Fruits were also seen. Overall whole plant looked healthy and luxurious. Soil of this pot was light and porous.
3	Soil mixed with NPK	the Plant was much taller in size, length of internodes was long, canopy looked sparse, size of leaves larger, flowers were in full bloom, plant needed much water and soil was little harder than soil of Pot no.2

Discussion

When wild medicinal plants are domesticated the soil mixed with wormi compost is of much benefits. We can get better quality of plant products, high yield and the products will be free of chemical compounds. Mercer *et al.* (2007) [4] also found domestication traits increase the relative fitness of plant when they were experimenting with diverse crop – wild hybrid genotypes relative to wild *Helianthus annuus* under one benign and three stressful agriculture environments.

There is demand of medicinal plants to prevent and treat the diseases it is better to cultivate them in wormi compost. A good compost with all the micro-nutrients is useful in increasing productivity and sustainability. Wormi compost when applied under right soil moisture condition improves soil texture and makes the soil porous, which is good for plant growth and also provides the crop necessary resistance against pest and diseases (Bhatia & Shukla 1982) [1]. As the use of chemical fertilizers increases productivity also increases but it is well known fact that with the increased use of fertilizer there is rise in the use of pesticides, because

of aggravation of pest and disease outbreaks (Denef & Six, 2005) [3]. And we know there are harmful effects of pesticides on plants and also on human being when the plant parts are consumed, thus there is need to protect the medicinal plants from ill-effect of fertilizers and pesticides.

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