

Short communication

Growth of Papaya grown in pot culture of different soil compositions

Swगतिका Sahu¹, Sujata Dash² and Nibha Gupta^{2*}

¹Project trainee, TACT, Bhubaneswar, Odisha, India

²Regional Plant Resource Centre, Bhubaneswar, Odisha, India

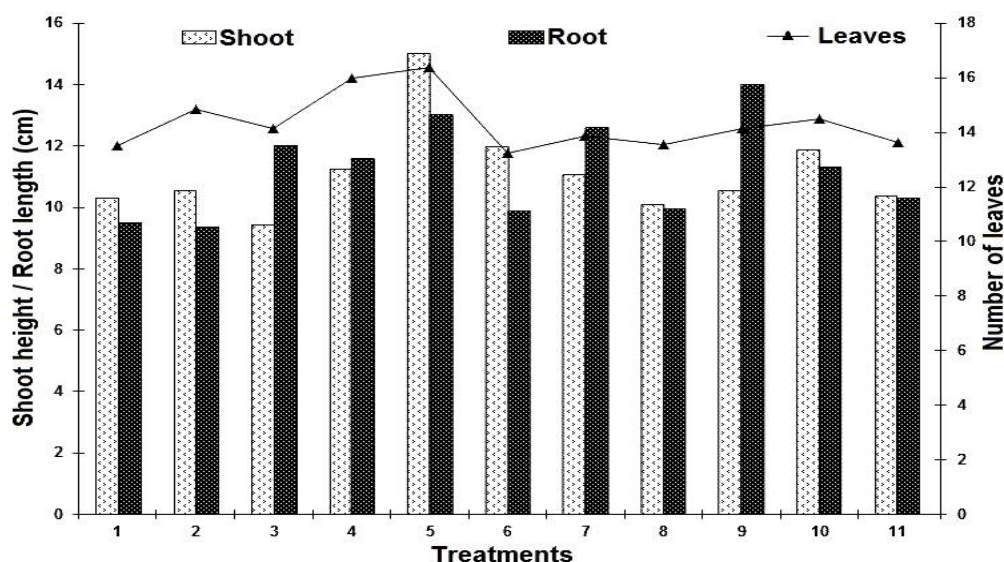
*Corresponding Author: nguc2003@yahoo.co.in

[Accepted: 09 November 2014]

[Cite as: Sahu S, Dash S & Gupta N (2014) Growth of Papaya grown in pot culture of different soil compositions. *Tropical Plant Research* 1(3): 87–88]

Papaya is known as anti-proliferative agent and consists of high nutritional value. It is reported that the application of microbial inoculants individually and/or along with different fertilizers effect the growth and development of papaya in field conditions (Mamtha *et al.* 2002, Wei *et al.* 2006). Hybrid papaya (Scarlet princess) (*Carica papaya* L.) is a high yielding variety. In present study, an attempt was made towards effect of different fertilizer treatment and phosphate solubilizer on growth of hybrid papaya grown in pot cultures.

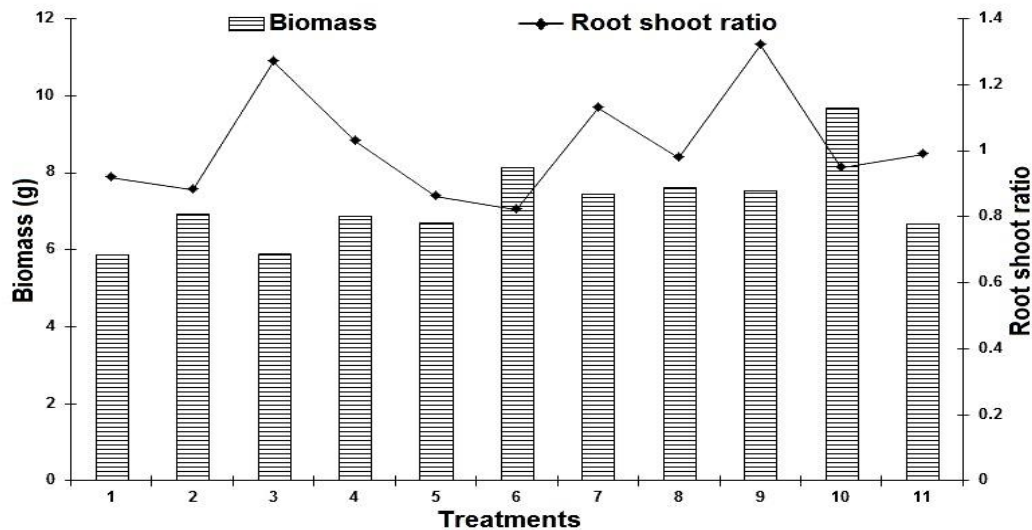
An experiment was carried out in 9 inch poly bags filled with fumigated sandy loam soil. The pot soil was added with different fertilizers individually and/or in combination. The treatments used were [1] control, [2] super phosphate (5 mg.pot⁻¹), [3] Potash (5 mg.pot⁻¹), [4] Shymala-a combination of N P K (5 mg.pot⁻¹), [5] Multiplex Annapurna (5 g.pot⁻¹), [6] Garden Samrat (5 g.pot⁻¹), [7] Nirmal Bio-power (5 g.pot⁻¹), [8] broth culture of fungi phosphate solubilising *Aspergillus* sp. (5 ml.pot⁻¹), [9] Fungi + Super phosphate (5 ml + 5 mg pot⁻¹), [10] Fungi + Super phosphate + Multiplex Annapurna (5 ml + 5 mg + 5g pot⁻¹), [11] Fungi + Multiplex Annapurna (5 ml + 5 g pot⁻¹). The plants were watered daily and final observation on various growth parameters were recorded after 60 days.



Where, 1= control, 2= Super phosphate (5 mg.pot⁻¹), 3= Potash (5 mg.pot⁻¹), 4= Shymala-a combination of N P K (5 mg.pot⁻¹), 5= Multiplex Annapurna (5 g.pot⁻¹), 6= Garden Samrat (5 g.pot⁻¹), 7= Nirmal Bio-power (5 g.pot⁻¹), 8= Broth culture of fungi phosphate solubilising *Aspergillus* sp. (5 ml.pot⁻¹), 9= *Aspergillus* sp. + super phosphate (5 ml + 5 mg pot⁻¹), 10= Fungi + Super phosphate+Multiplex Annapurna (5 ml + 5 mg + 5 g pot⁻¹) and 11= Fungi + Multiplex Annapurna (5 ml + 5 g pot⁻¹).

Figure 1. Height of Papaya plant grown in different treatments.

Results obtained on growth parameters exhibited good performance of hybrid papaya grown in different treatment as compared to control (Fig. 1). The plants grown under treatment of Annapurna showed good leaf



Where, 1= Untreated control, 2= Super phosphate (5 mg.pot⁻¹), 3= Potash (5 mg.pot⁻¹), 4= Shymala-a combination of N P K (5 mg.pot⁻¹), 5= Multiplex Annapurna (5 g.pot⁻¹), 6= Garden Samrat (5 g.pot⁻¹), 7= Nirmal Bio-power (5 g.pot⁻¹), 8= Broth culture of fungi phosphate solubilising *Aspergillus* sp. (5 ml.pot⁻¹), 9= *Aspergillus* sp. + super phosphate (5 ml + 5 mg pot⁻¹), 10= Fungi + Super phosphate+Multiplex Annapurna (5 ml + 5 mg + 5 g pot⁻¹) and 11= Fungi + Multiplex Annapurna (5 ml + 5 g pot⁻¹).

Figure 2. Dry biomass and root shoot ratio of papaya plants grown in different treatments.

number, shoot height and root length. In similar way treatment of Garden Samrat exhibited good plant growth in terms of biomass (Figs. 2 & 3). Inoculation of *Aspergillus* sp. in pot soil did not show any effect on growth enhancement of papaya. However, the combination of *Aspergillus* sp. with super phosphate and Multiplex Annapurna exhibited the highest dry biomass as compared to other treatments and untreated control. Since, growth and development of any plants depend upon several edaphic and environmental factors too (Wei *et al.* 2006), further experimentation on standardization of inoculum density, soil factors and quantification of fertilizer treatments are required to reach any conclusion.

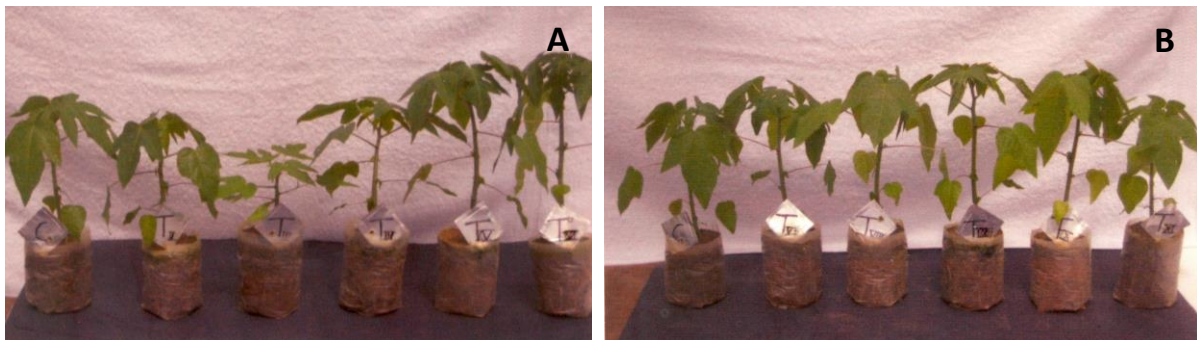


Figure 3. A & B, Effect of different treatments on growth of papaya.

REFERENCES

- Mamatha G, Bagyaraj DJ & Jaganath S (2002) Inoculation of field-established mulberry and papaya with arbuscular mycorrhizal fungi and a mycorrhiza helper bacterium. *Mycorrhiza* 12: 313–316.
- Wei XD, Zou HL, Chu LM, Liao B, Ye C, M & lan CY (2006) Field released transgenic papaya affects microbial communities and enzyme activities in soil. *Plant Soil* 285: 347–358.