

## Study on role of various rooting media on seed germination and physiological growth of coconut (*Cocos nucifera* L) cv. ALR-1

D. KARTHIKEYAN, P. JANSIRANI, G. BALAKRISHNAMURTHY AND A.VIJAYAKUMAR

Accepted : February, 2009

See end of the article for authors' affiliations

Correspondence to:

**D. KARTHIKEYAN**  
Department of  
Horticulture, Krishi Vigyan  
Kendra, Utukur, KADAPA  
(A.P.) INDIA

### ABSTRACT

A field experiment was conducted on coconut at Horticulture College and Research Institute, Tamil Nadu Agricultural University Coimbatore during 2005-2006 to find out the role of various rooting media on seed germination and physiological growth of coconut (*Cocos nucifera* L.). The experiment was laid out in a Randomized Block Design consisting three-germination media viz., Vermicompost, coir compost, sand and their combinations with eleven treatments. Various growth characters were recorded at monthly intervals from 90 days after sowing. The results of the study revealed that coconut seed nut showed better response by the water soaked nuts sown in sand (3) + vermicompost (1) media which significantly influenced seed germination and subsequent growth of plant.

**Key words :** Coconut, Rooting media, Seednut, Germination

Coconut is valued for its nut, which have components as coconut milk, kernel, shell and husk. Seed propagation is the commercial method of propagation in coconut. The palm continues to yield more than over 80 years and the full bearing capacity becomes known only 10 to 15 years after planting. If the seedling material happens to be unselected and inferior in quality, the garden will prove to be highly uneconomical and a continuous source of loss to the grower which leads to poor establishment of plantation. For avoiding such situations, planting vigorous seedling is a pre requisite. Hence, an attempt has been made to study the role of various rooting media on seed germination and physiological growth of coconut (*Cocos nucifera* L.) cv. ALR-1.

### MATERIALS AND METHODS

A field experiment was conducted with coconut var. ALR-1 during 2005-2006. The experiment consisted of eleven treatments viz., T<sub>1</sub> - sand (1) + soil (1), T<sub>2</sub> - sand (3) + vermicompost (1), T<sub>3</sub> - soil (3) + vermicompost (1), T<sub>4</sub> - sand (3) + coir compost (1), T<sub>5</sub> - soil (3) + coir compost (1), T<sub>6</sub> - water soaking + sand (1) + soil (1), T<sub>7</sub> - water soaking + sand (3) + vermicompost (1), T<sub>8</sub> - water soaking + soil (3) + vermicompost (1), T<sub>9</sub> - water soaking + sand (3) + coir compost (1), T<sub>10</sub> - water soaking + soil (3) + coir compost (1) and T<sub>11</sub> - control

The treatments were replicated thrice in randomized block design. Observations on days taken for germination, days taken for first leaf emergence, seedling height, stem girth, number of leaves, number of roots, root length, percentage of germination and reducing sugar content were recorded from randomly selected plants.

### RESULTS AND DISCUSSION

The results showed the significant effects for all the characters of the study *i.e.* days taken for germination, days taken for first leaf emergence, seedling height, stem girth, number of leaves, number of roots, root length, percentage of germination and reducing sugar content (Table 1).

The minimum days taken for germination (92.40) were observed in the media containing water soaking, sand and vermicompost in 3:1 ratio (T<sub>7</sub>). This could be due to the media *i.e.* vermicompost that contains more micronutrients, macronutrients and nitrogen fixing organism (Bano *et al.*, 1987).

The seedling height of 58.33 cm during the end of the experiment was recorded in the treatment (T<sub>7</sub>) *i.e.* water soaking, sand and vermicompost in 3:1 ratio which might also be due to the release of beneficial chemicals derived from the bodies of the earthworms that are supposed to be present in the organic matter (Hopp, 1949). The highest stem girth of 5.52 cm was recorded at the end of the experiment in the treatment (T<sub>7</sub>). The data on number of leaves of seedling revealed that there was a significant increase in number of leaves of the seedling grown under different media. The highest number of leaves of the seedling was recorded in the treatment (T<sub>7</sub>) containing water soaking, sand and vermicompost in 3:1 ratio. Incremental values of this trait in a continued manner from the start to end of the experiment might be due to the increased biomass production through improved photosynthetic efficiency from the nutrient rich vermicompost medium, which influenced the number of leaves of the seedlings. The reason might be due to the