

## Performance of tissue culture datepalm (*Phoenix dactylifera* L.)

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### ABSTRACT

Datepalm (*Phoenix dactylifera* L.) is considered as one of the oldest cultivated fruit crops of the world. The cultivation of datepalm is lying on north western arid regions of India mainly in the coastal belt from Anjar to Mandavi of Kutch district of Gujarat state. The Datepalm is monocotyledone dioecious perennial. The datepalm is propagated through seeds, offshoots and tissue culture plants. Propagation through seeds and offshoots has its own limitations. The application of tissue culture as a method of clonal propagation in datepalm is important as a large number of plants can be prepared (Tisseret, 1981). Tissue culture datepalm plants were developed at Tissue Culture Laboratory, Rural Agro Research and Development Society, Mundra and provided five plants to each of fifteen progressive farmers of main date growing area of Mundra Taluka in the villages Zarpara, Bhujpur and Dhruv during September 2007. Krishi Vigyan Kendra, Mundra carried out a primary study on the performance of tissue cultured datepalm planted by farmers in the field. The study was done in the month of May 2008. It was observed that tissue culture datepalm plants gave more success (90 %) and found healthy which were planted within the field of forage Lucerne as compare to datepalm orchard (66.67%), open field (45%) and forage jowar (40%).

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**D**atepalm (*Phoenix Dactylifera* L.) is considered as one of the oldest cultivated fruit crops of the world, distributed in places where there is water in the sub tropical deserts, in north and south America, Africa and Asia. The cultivation of datepalm is lying on north west arid regions of India. It is commercially cultivated mainly in the coastal belt of Kutch from Anjar to Mandavi. The Datepalm is the monocotyledone dioecious perennial. The Datepalm groves of Kutch is developed through seed propagation, hence the majority (70 to 80%) of the produce is inferior in quality (Pareek and Sodagar, 1986). Owing to heterozygosity and dioecious nature of datepalm, vegetative propagation by offshoots is necessary for commercial plantation (Mohammad, 1978). This is the true method of propagation to preserve true to type nature of mother palm and followed throughout the world. The datepalm produces an average of 10 to 12 offshoots only in its early stage of life (up to 15 years), which limits its plantation. Tissue culture is very complicated and sophisticated technique. The application of tissue culture as a method of clonal propagation in datepalm is important as a large number of plants can be prepared. By culturing clonal explants via callus in a modified Murashige and Skoog medium, datepalm plantlets have been initiated and have been successfully transplanted *in vitro* to free living condition (Tisseret, 1981).

### MATERIALS AND METHODS

The present study was undertaken during 2007-08 on the performance of tissue culture datepalm developed by Tissue Culture Laboratory, Rural Agro Research and Development Society, Mundra. Fifteen progressive date growers were selected from Bhujpur, Zarpara and Dhruv villages of Mundra taluka of main date growing area of the Kutch district for the distribution of tissue culture datepalm. Each selected date grower was provided five tissue culture datepalm plants in the month of September 2007 and farmers planted it during the month of September 07 (nine farmers), December 07 (two farmers) and April 08 (four farmers). The plants were planted in four different situations *i.e.* in the field of forage lucerne (6), in the field of forage jowar (2), in between datepalm orchard (3) and in open field (4). The study for the performance of tissue culture datepalm in farmers' field was undertaken by Krishi Vigyan Kendra, Mundra during the month of May 2008 and results were presented.

### RESULTS AND DISCUSSION

The maximum survival (90%) was recorded in the plants planted in the field of forage lucerne (Table 2). Total 27 plants get survived out of 30 plants. This might be due to sufficient moisture and regular and frequent irrigation which was provided to the forage lucerne. At