## **Research Article**



## Phenotypic Reversion of Somaclonal Variants Derived from Inflorescence of Date Palm (*Phoenix dactylifera* L.) in the Open Field Trials

## Abdul A. Mirani<sup>1,2\*</sup>, Chee H. Teo<sup>2</sup>, Adel A. Abul-Soad<sup>3</sup>, Ghulam S. Markhand<sup>1</sup>, Tahira Jatt<sup>1</sup>, Ameer A. Mirbahar<sup>1,4</sup>, Najamuddin Solangi<sup>1</sup>

<sup>1</sup>Date Palm Research Institute (DPRI), Shah Abdul Latif University, Khairpur, Pakistan; <sup>2</sup>Centre for Research in Biotechnology for Agriculture (CEBAR), University of Malaya, 50603 Kuala Lumpur, Malaysia; <sup>3</sup>Horticulture Research Institute, Agricultural Research Center, Cairo, Egypt; <sup>4</sup>Department of Botany, Shah Abdul Latif University, Khairpur, Sindh, Pakistan

Received | February 05, 2019; Accepted | April 05, 2019; Published | June 25, 2019 \*Correspondence | Abdul A. Mirani, Date Palm Research Institute (DPRI), Shah Abdul Latif University, Khairpur, Pakistan; Email: abdulazizmirani@gmail.com Citation | Mirani, A.A., C.H. Teo, A.A. Abul-Soad, G.S. Markhand, T. Jatt, A.A. Mirbahar, N. Solangi. 2019. Phenotypic reversion of somaclonal variants derived from inflorescence of date palm (Phoenix dactylifera L.) in the open field trials. *Sarhad Journal of Agriculture*, 35(3): 719-726.

**DOI** | http://dx.doi.org/10.17582/journal.sja/2019/35.3.719.726 **Keywords** | Abnormal phenotype, Date palm, Inflorescence, Micropropagation, Somaclonal variations

## **Supplementary Table 1:** Phenotypic abnormalities in micropropagated date palm (P. dactylifera L) plants derived from shoot tip and inflorescence explants.

Phenotypic abnormalities	From shoot tip	From inflorescence
Bending of the whole plant	(Hassanpour-Estahbanati and Hamidian, 2007)	
Dryness of apical bud	(Alkhateeb, 2008)	
Dwarfism/ slow growth rate and development	(Al-Wasel, 2001)	In current study
Excessive vegetative growth	(Al-Mazroui et al., 2006)	In current study
Terminal bud bending	(Alkhateeb, 2008)	
Production of deformed offshoots / Twisted inflorescence	(Zaid and Al-Kaabi, 2003; Hassanpour-Estah- banati and Hamidian, 2007)	In current study
Abnormal frond / leaf growth	(McCubbin et al., 2000)	In current study
Albinism or variegation of leaves	(Alkhateeb, 2008)	
Leaf whitening	(Al-Mazroui et al., 2006)	
Necrosis on leaf midrib	(Hassanpour-Estahbanati and Hamidian, 2007)	
Single leaf chlorosis	(Hassanpour-Estahbanati and Hamidian, 2007)	
Twisted leaf	(Hassanpour-Estahbanati and Hamidian, 2007)	
Delay flowering time	(Al-Mazroui et al., 2006)	
Abnormal growth and development of fruit strands	(McCubbin et al., 2000)	
Fertilization failure or low levels of fruit setting	(Al-Mazroui et al., 2006)	In current study
High susceptibility to disease	(McCubbin et al., 2000)	
Inability to form inflorescence / Inflorescence absent	(McCubbin et al., 2000)	In current study

September 2019 | Volume 35 | Issue 3 | Page 1



OPENOACCESS		Sarhad Journal of Agriculture
Change in fruit quality	(Alkhateeb et al., 2006)	
Production of abnormal parthenocarpic (seedless) fruit	(Cohen et al., 2004)	
Production of multiple carpels	(Alkhateeb and Ali-Dinar, 2002)	