



Behind the scenes of microspore-based double haploid development in Brassica napus: A review

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Abstract

Double haploids are extremely valuable for generating completely homozygous genotypes and have been used in plant breeding program of a number of crop species. This method is a much faster way of developing genetically pure breeding lines in one single generation. The main objective of this review is to describe in a clear and simple manner how microspore-based double haploids of rapeseed are produced and helps a reader to understand the amazing process of microspore embryogenesis, also referred to as androgenesis or pollen embryogenesis. This review will explain what double haploids are as well as their importance in both Brassica breeding and molecular studies. Additionally, a brief discussion of different factors affecting the double haploid production and a comprehensive explanation of the steps involved in the development of the double haploids will be covered.

Keywords: Double haploid, protocol, Brassica, plant breeding

Biography: Dr Rahman's main research area is natural product chemistry with particular focus on anti-infective drug discovery. His research interests include bioassay directed isolation, purification and identification of antibacterial metabolites from medicinal plants and microbes as well as the synthesis of their analogues to fit them for SAR study. Dr Rahman has been working on numerous medicinal plants from different parts of the world for the isolation and characterization of bio-active metabolites from a variety of structural classes including anti-MRSA compounds and efflux pump inhibitors (EPIs). In order to confirm the structures of the compounds of natural products, Dr Rahman exploits high field NMR (both 1D and 2D) spectroscopy and mass spectrometry. He has published more than 80 articles in peer review journals and attended several international conferences in UK, USA, Switzerland, Austria, Greece, Bangladesh and India as invited speaker. He supervised postdoctoral research fellows funded by the commonwealth commission. His current PhD and MRes students are focusing on the characterization of anti-infective and anticancer secondary metabolites from medicinal plants.