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5.2.1 Identification of the time and type of barrier in hybridization5.2.2 Isolation of plant material after fertilization; 5.2.3 Culture conditions and media; 5.2.4 Confirmation of hybridity and ploidy; 5.2.5 Conditions for regeneration of embryos to plants; 5.3 Troubleshooting; References; 6 In vitro Flowering and Seed Set: Acceleration of Generation Cycles; 6.1 Introduction; 6.2 Methods and approaches; 6.2.1 Protein legumes [7]; 6.2.2 Arabidopsis thaliana [13]; 6.3 Troubleshooting; References; 7 Induced Mutagenesis in Plants Using Physical and Chemical Agents; 7.1 Introduction
7.2 Methods and approaches7.2.1 Determination of the optimal doses of mutagens for inducing mutations; 7.3 Troubleshooting; 7.3.1 Factors influencing the outcome of mutagenesis using chemical mutagens; 7.3.2 Factors influencing the outcome of mutagenesis using physical mutagens; 7.3.3 Facts about induced mutations; References; 8 Cryopreservation of Plant Germplasm; 8.1 Introduction; 8.2 Methods and approaches; 8.2.1 Main principles; 8.2.2 Slow (two-step) freezing; 8.2.3 Vitrification; 8.2.4 Encapsulation-dehydration; 8.2.5 DMSO droplet freezing; 8.2.6 Combined methods
8.2.7 Freezing of cold-hardened buds8.2.8 Freezing of orthodox seeds; 8.2.9 Freezing of pollen and spores; 8.3 Troubleshooting; References; 9 Plant Protoplasts: Isolation, Culture and Plant Regeneration; 9.1 Introduction; 9.2 Methods and approaches; 9.2.1 Protoplast isolation; 9.2.2 Protoplast culture; 9.3 Troubleshooting; References; 10 Protoplast Fusion Technology - Somatic Hybridization and Cybridization; 10.1 Introduction; 10.2 General applications of somatic hybridization; 10.3 Methods and approaches; 10.4 Troubleshooting; References; 11 Genetic Transformation - Agrobacterium
11.1 Introduction

Sommario/riassunto

The ability to culture cells is fundamental for mass propagation and as a baseline for the genetic manipulation of plant nuclei and organelles. The introduction to Plant Cell Culture: Essential Methods provides a general background to plant cell culture, including basic principles, technologies and laboratory practices that underpin the more detailed techniques described in subsequent chapters. Whilst each chapter provides a background to the topic area and methodology, a crucial aspect is the provision of detailed protocols with emphasis on trouble shooting, describing common pr