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Somatic hybrid and cybrids

Somatic hybridization may be described as the production of hybrid cells by the fusion of protoplasts of somatic cells derived from two different plant species. It is helpful for generating new and improved hybrid varieties of plant that may have characters of a completely different species for example Pomato is a somatic hybrid which is produced by the fusion of protoplast of somatic cells from potato and tomato which are totally different species. A cybrid is a cytoplasmically hybrid cell which has the cytoplasm of both fusing cells but nucleus of only one fusing cell. The process of production of a cybrid is called cybridisation. Steps involved in somatic hybridization are given below.

- a) Protoplast isolation from parent plant using any mechanical or enzymatic method
- b) Fusion of isolated protoplast derived from two different parents either by utilizing chemical fusogens (like NaNO_3 , Polyethylene, Glycol) or by electro fusion method.
- c) Selection of hybrid cells is done after fusion process.
- d) The selected somatic hybrid are then verified for hybridity. This is done to check whether the hybrid is carrying the desired characteristics of both parents or not.
- e) On successful verification and characterization the somatic hybrid are cultured for regenerating in to plantlets with derived characters.

Somatic hybridization over comes the sexual incompatibility barriers and it enables to produce interspecific as well as intergeneric crosses in plants. It

help in impairing disease resistance and improving the quality character in plants. It is an immensely beneficial tool for study of cytoplasmic genes and their expressions.