



# Application of Agriculture Biotechnology Research in Saudi Arabia

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Transfer**

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# Introduction

**Agriculture research is a wide aspect and have multi fields and in this contribution we will limit The subject in Agriculter Biotechnology being of the latest technologies**





# Agriculture biotechnology

It is a group of technologies including Biochemistry, Microbiology, Plant physiology and biophysics, working together in favor of plant micropropagation, plant development by improving the genetical or chemical components to produce new materials of great values.





# Plant Tissue Culter

**Plant Cell Tissue and Organ Culture have moved from being science to research to application**

**This technology is now available in universities , research centers and Private sector**







# Plant Tissue Culter

**Tissue culture has started in KSA  
for about 30 years**

**It is applied on date Palm and  
reduced the DP price from up to  
10 thosand SR to 150 SR L unit**







# Plant Tissue Culter

**Tissue culture is also applied on Horticulture crops such as roses strowbery , potatos and Figs**

**It is also applied on Desert plants for Mass production**

**It is also consider to be a stage of gene transformation technology**











# Plant Tissue Culter

**This tecnology was applied on large scale on planting desert parks and cities gardens and plantation areas**







مراحل الزراعة النسيجية للأكاسيات مثل السمر





**Plants growing at Bukayriah Municipality field station**



دراعتي حيا فظة الزرع

وزارة الزراعة

دراج استزرارع النباتات البر

مدينة الملك عبد العزيز العام والتمهيد بالبر

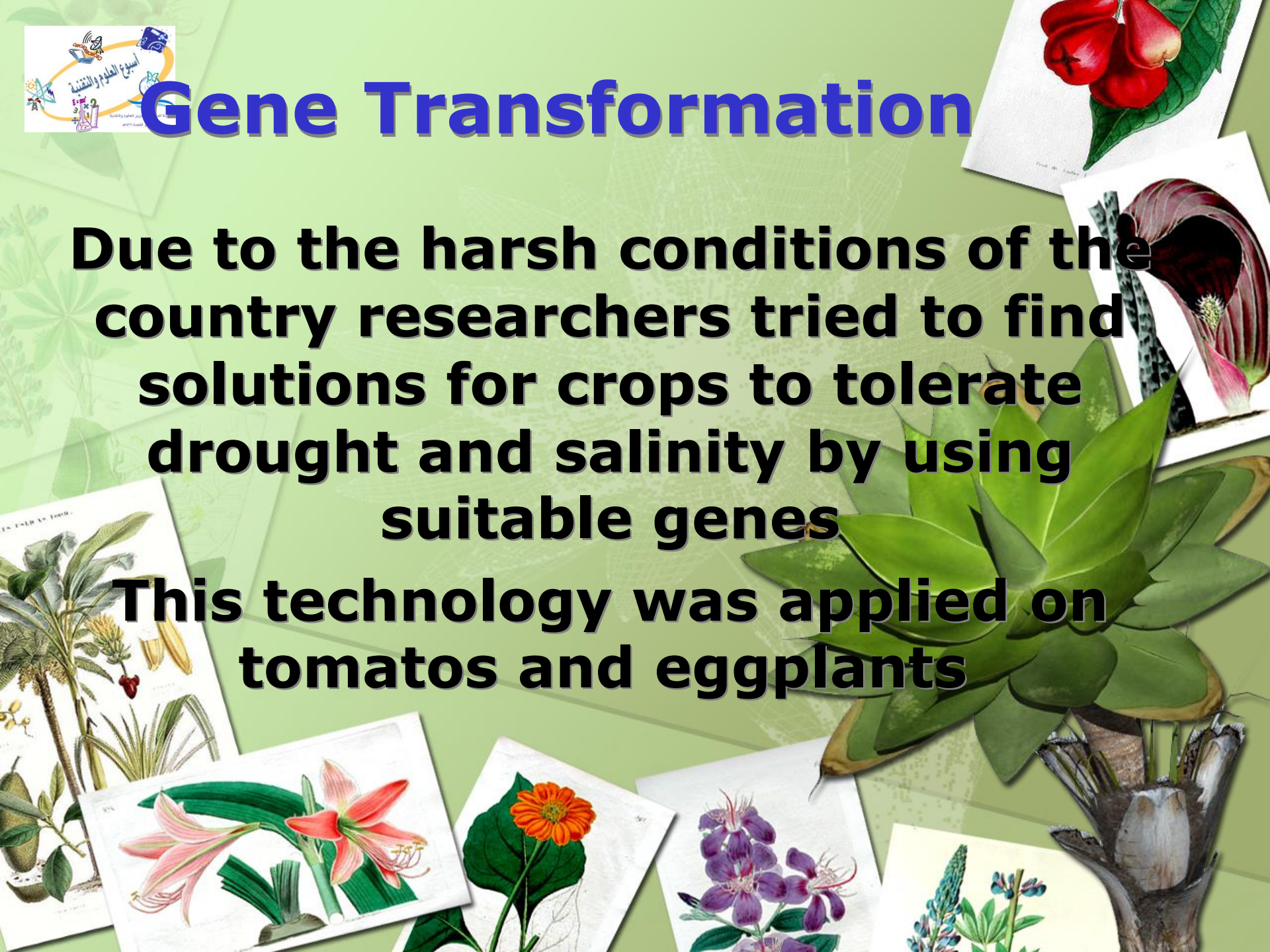




# Gene Transformation

**Due to the harsh conditions of the country researchers tried to find solutions for crops to tolerate drought and salinity by using suitable genes**

**This technology was applied on tomatoes and eggplants**









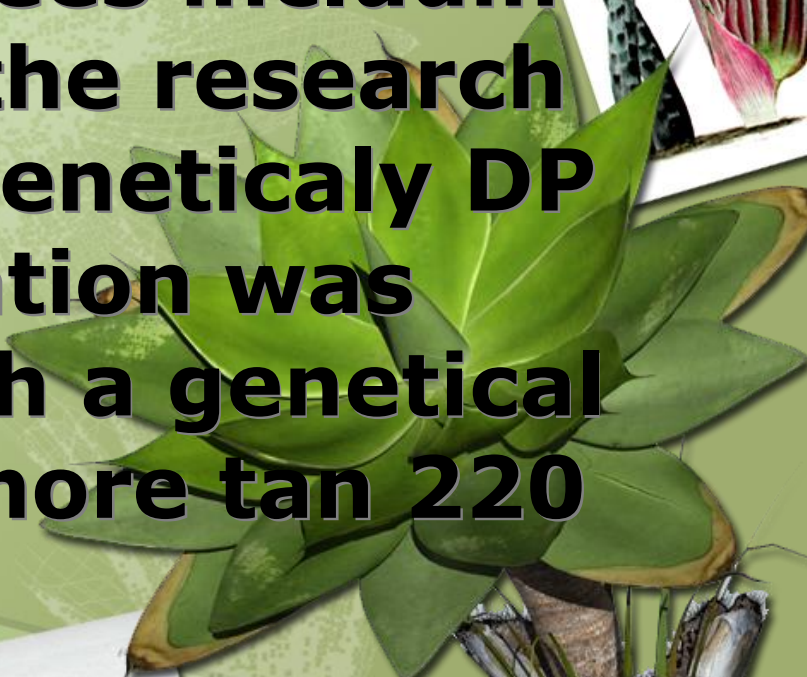






# DNA Fingerprinting

**Saudi Arabia contain more than 30 million Date palm trees including 450 variety , since the research have succeeded to genetically DP trees the application was extended to establish a genetical database covering more than 220 varieties**







# Molecular analysis ( DNA Fingerprinting )

## The need for Molecular Analysis

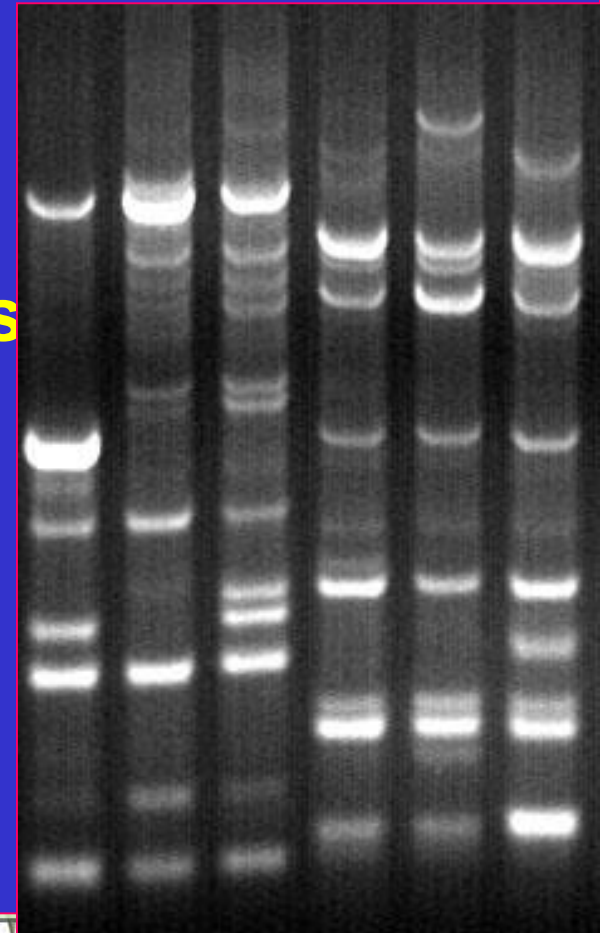
identify cultivars

determine phylogenetic relationships

identify somaclonal variations

determine genetic variability

to protect property rights.

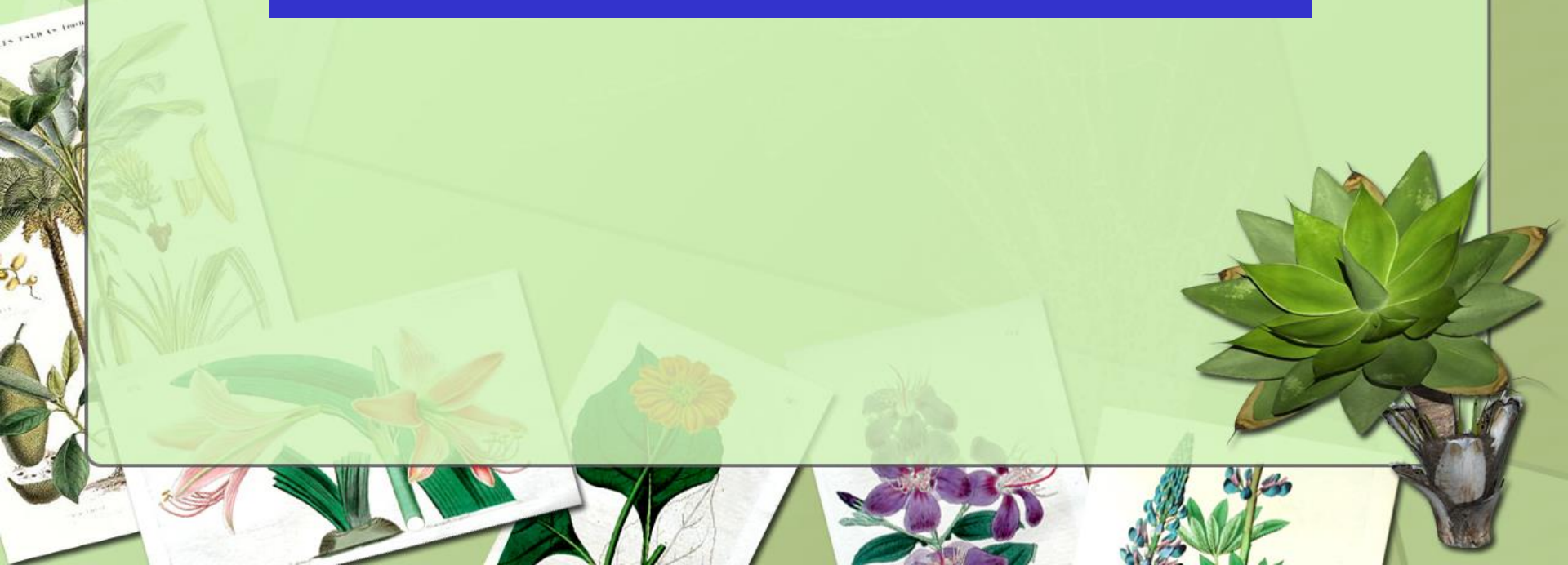




## Cryo-preservation

**Cryogenic storage at very low ( $-196^{\circ}\text{C}$ ) temperatures is presumed to provide an indefinite longevity to cells and tissues.**

**This technique can be used to store the seeds and tissues of rare and endangered plants for very long period under protected conditions.**







# Outcomes

**The research technologies were applied at large scale and the products were used in the fields**

**The research results were published in different forms locally and internationally in articles and books**











The Natural History Museum

شكرا لاستماعكم



THANK YOU

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