



EFC PLANTS

TISSUE CULTURE



EFC PLANTS

Tissue Culture



OUR MISSION

Improving the farmers' standard of living, developing the national economy, and creating value added for shareholders by providing high quality agricultural materials.

INTRODUCTION

The Egyptian French Company for Plant Tissue Culture S.A.E (EFC Plants)

is a leading Plants Tissue Culture Lab and Plant Research and Development Center. The company is specialized in the development and the micro-propagation of Date Palm Plants, Potato mini-tubers and other plants.

EFC Plants is one of the largest agricultural biotechnology laboratories. It owns and operates a modern fully equipped laboratory, which is built according to the latest and the most advanced standards in the field of plant tissue culture and designed by leading French consulting firms in this field; besides the company's team that includes an elite group of senior international scientists and specialized technicians with scientific and practical expertise.

HISTORY 1984

The company is a member of family owned conglomerate, completing the group success path which started with its first company established in 1984 as a small building construction company. The company starting growing bigger and transformed to a group of companies engaged in 6 different industrial and services sectors and a Community Development Foundation.

OUR VISION

EFC Plants shall be one of the largest international companies working in the field of agricultural technology through the combination of development, scientific research and optimal production systems.

Laboratory building:



1,240 m²

Plant growth chambers:



640 m²

Greenhouses for plant acclimatization:



1,800 m²

Covered greenhouses:



12,000 m²

Management:



200 m²



PRODUCTS

The application of tissue culture techniques, also called in-vitro propagation, has many advantages in comparison to the two traditional techniques (seed and offshoots propagation) and enables the following:



Propagation of healthy selected female cultivars (disease and pest-free) and male cultivars that have superior pollen.



Elimination of seasonal effect on plants as they are propagated under controlled conditions in the laboratory throughout the year.



Eliminating any risk of the transfer or spread of diseases and pests between different regions of a country or between countries.



Large scale multiplication is cost-effective and reliable when large number of plants is required.



Production of genetically uniform plants.

Plant tissue culture is the process of cloning cells, tissues or organs of the mother plants and propagating them in nutrient media, under sterile and controlled environmental conditions. The objective of tissue culture is to produce a large amount of genetically identical plants to the mother plants in a short period compared to the production of the usual agricultural methods. Parts of the tissue of these plants are removed, disinfected and then planted into sterile agricultural media. By planting these tissues into a specific nutrient medium, we can partially control further development and encourage propagation or rooting.

These young plants are grown under sterile conditions in equipped growth chambers, which are optimally regulated in terms of quality and intensity of lighting, temperature and air purity.

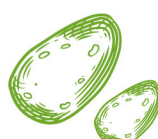
Then the plants are moved to the company's greenhouses. These sophisticated greenhouses where temperature, humidity, and lighting are controlled enable production 365 days a year.

The selected plant germplasms are kept in sterile laboratory conditions in the gene bank within the company's laboratories and are constantly being renewed. This is a great advantage for our customers, who specifically need to obtain strains with the same genetic makeup as the mother plants and free of diseases.

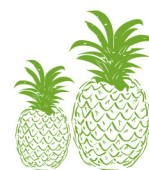
EFC Plants is specialized in the production of:



Date Palm
(*Phoenix dactylifera L.*)



Potato mini-tubers
(*Solanum tuberosum*)



Pineapple
(*Ananas comosus*)



Sugarcane cultivars
(*Saccharum spp. hybrids*)



Ornamental Plants

The company also provides exclusive contract production of plants, either using protocol supplied by the client or utilizing protocols available in-house.

DATE PALM

(*Phoenix dactylifera* L.)



EFC Plants is specialized in Date palm micro-propagation and acclimatization. The company directed its energy towards producing date palm seedlings of the highest quality with state-of-the-art technology. The company production capacity exceeds 200,000 Date Palm Plants per year.

The main varieties preserved and propagated at present in the Laboratory are: Medjool (Mejhoul), Barhi, Khalass, Sagai and Ghannami. Other varieties can be micro-propagated as per demand.

In respect of the genetic conformity of the plants preserved and propagated; EFC Plants monitors the genetic stability of the plants during the whole in-vitro process.

The complex quality control standards used in the laboratory and the third-party verification and assessment of the stability of the plants varieties by comparing the genetic profiles of the mother plants (offshoots) with the produced in-vitro plants ensure that all our plants are true to type.

SOURCE MATERIAL

All explants used in production originate from offshoots that have been carefully selected from known sources and from mother plants of proven health and variety characteristics. Offshoots are tested for variety confirmation in leading European Laboratories specialized in DNA testing and fingerprinting techniques.

LABORATORY IN-VITRO PROPAGATION

EFC Plants uses the explants taken from the desired mother date palm plants in its natural environment and initiated into an in-vitro controlled environment in the laboratory.

Once successfully initiated, the explant grows and differentiates, producing many date palm plantlets, which are identical to the mother date palm plant.

These date palm plantlets enter the multiplication stage according to the pre-determined production plan that ensures the genetic conformity of all plants is maintained.

The separation of shoots starts and then the plants go through the elongation and in-vitro rooting stages under the most advanced and controlled laboratory growth rooms.

ACCLIMATIZATION AND HARDENING

After the in-vitro process is finished; the plants are transplanted in “torpedo” pots in a special peat mixture and transferred to controlled greenhouse for acclimatization.

Once adapted to the ex-vitro conditions, the plants are further hardened until they reach the size of approximately 25-30 cm with 3 to 5 juvenile leaves.

The greenhouse provides facilities for planting, hardening and growing, packing and dispatching EFC Plants certified date palm plants.

FIELD CONFIRMATION

Continuous plant testing and monitoring of the morphology and fruit characteristics of our plants is done during the first five years of production. EFC Plants provide its customers with technical and field support to ensure total customer satisfaction and profitability.





POTATO MINI-TUBERS (*Solanum tuberosum*)

EFC Plants is specialized in mass production of virus and disease-free potato mini-tubers. (*Solanum tuberosum*)

The enormous pressure of disease cannot be avoided via the traditional seed potato propagation. One hundred percent disease-free and excellent seed potatoes can only be produced via tissue culture production in a laboratory.

Our potato mini-tubers give 20-30% higher yield than conventional plantations, are free from disease and fetch a premium price in the market for uniform, evenly shaped potatoes. We offer: Spunta, Hermes, Lady Rosetta and other varieties.

EFC Plants concentrates on potato production through tissue culture and the cultivation of mini-tubers of free and protected varieties using an innovative process. These mini-tubers are used for the production of high-quality potatoes for local farmers and for the export markets.

PROCESS:

At the start of the tissue culture production, both potato tubers and stem segments are used to create new plantlets. The tubers or stem segments are first selected, sterilized and then the shoots are placed on a sterile culture medium. The newly formed micro plants serve as the basis for propagation in the laboratory.

The process begins at EFC Plants where these certified potato micro plants which are tested virus-free and approved are received in aseptic conditions from Europe's leading germplasm banks are sub cultured under aseptic conditions and controlled climatic conditions. Our dedicated team micro-propagates the meristems and cuttings are taken repeatedly until the desired number of micro plants of each variety is reached. Propagation of potato plants in our laboratory up to the production of mini tubers in a controlled greenhouse are checked at every stage in the process for viruses and bacteria resulting in mini-tubers arriving at our customers bacteria and virus free and with an EFC Plants certificate.

Capacity of the tissue culture laboratory is 4,000,000 in-vitro plants per year and production capacity of the tissue culture greenhouses is 8,000,000 mini-tubers per year with a plan to double the production capacity in the next three years.

EFC Plants laboratories have the infrastructure to make production 365 days per year with the existing advanced greenhouses. The heating system provides production in winter months while production continues using the cooling system in summer season.

EFC Plants Tissue Culture laboratories and mini-tubers production greenhouses are accredited and all seeds are produced under the national certification scheme.

EFC Plants can also help facilitate the procurement of varieties from most breeders internationally (under license) and can assist with Plant Breeding Rights to protect those varieties. In addition, research and development team is working on the development locally adapted potato varieties.


Order should be placed at least one year in advance and at least 6 months in advance of desired planting date.




EFC PLANTS
TISSUE CULTURE

THE EGYPTIAN FRENCH COMPANY FOR PLANT TISSUE CULTURE S.A.E

Plot 777 Line 5 South, Ahmed Orabi Agricultural Association, El Obour City, Cairo, Egypt
P.O. Box: 28, 44971 El Obour City, Cairo, Egypt

 (+202) 2469 83 09

 (+2010) 6001 1101

 info@efcplants.com

 www.efcplants.com