

## Abstract of Presentation

**Note: This paper should be typed in “Times New Roman” of 12pt.**

Presentation Title(Should be no more than 20 words):

**Plant Biotechnology: From Biodiversity to Bioindustry**

Prof. Mahmoud M. Sakr

Biotechnology Project Officer, STDF, Egypt,

Center of Excellence for Advanced Sciences (CEAS), NRC, Cairo, Egypt,

Abstract :

Nowadays, one-fourth of all prescription drugs come from plants. Egypt has a wealth of valuable plant genetic resources. The economic value of few species is known, meanwhile the value of the rest is partially or completely unknown. Some Egyptian medicinal plants are quite rare and others are endangered ones. A cryogenic seed bank, protected area and cryopreservation are different approaches in use nowadays to protect rare and endangered plant species. However, deployment of *in vitro* culture systems is the most appropriate and promising technology not only for clonal mass propagation and cryopreservation of rare species but also for biotechnology-based production of pharmaceutically bioactive substances. The aim of this lecture is to highlight some developed tissue culture systems for some rare and endangered Egyptian medicinal and wild plants, either for the protection of biodiversity or biotechnology-based production of the target pharmaceutically active substances. In this context, we developed systems for *in vitro* regeneration of *squill* (Marsa Matrouh, Egypt), *Silene leucophylla*, *Bufonia multiceps* and *Polygala sinica* (Santa Katherine Protectorate, Sinai, Egypt) and *Aroma Palestinian* (Palestine). Genetic stability of *in vitro* produced plantlets was carried out using morphological description and PCR-based genetic analysis. On the other hand, a system for the production of cucurbitacins (potent antitumor) from cell culture of *Ecballium elaterium* (Squirting cucumber) was developed. One of the main objectives of this presentation is to highlight some economic importance plants, available research capabilities in the field and to exchange knowledge and experience with Japanese colleagues for bilateral cooperation of mutual benefits.