

Preface to the First Edition

The present book will be the first book focus on the production of pharmaceuticals via the application of plant biotechnology on higher plants. This Edition will focus on the production of pharmaceuticals from *in vitro* cultures of higher plants e.g., cell, tissue and organ cultures etc.,.

Chapter.1. focused on the *in vitro* Production of secondary metabolites/classical methods, important concepts related to the production of secondary metabolites from higher plants using plant biotechnology techniques, applicable methods used for the enhancement of the *in vitro* production of secondary metabolites and finally, industrial production of useful biochemicals by higher-plant cell cultures

Chapter.2. introduced many valuable examples of the *in vitro* production of pharmaceutical products (anticancer, antimicrobial, antiviral, antimalarial and tonic agents etc.) from higher plants, how to improve yields to commercially interesting levels will be included also in this chapter in addition to many other related topics.

Plant Biotechnologies and Pharmaceutical Products

In vitro production of pharmaceuticals from higher plants has been limited to few chapters in little books in the past, although *in vitro* cultures of higher plants can be considered to be one of the greatest alternative sources of many valuable drugs such as; anticancer, antioxidant and antimicrobial drugs etc.,.

This book will be the starting point in this regard; hoping that, it will be beneficial to readers and other researchers focus on this area of Science in the future and add to this point what is missing in this book.

With all the best wishes of the author

Eman Abdel-Samiaa Ali Hussein Alam