

Preface

It is our pleasure to present the 53rd volume of the *Biotechnology in Agriculture and Forestry (BAF)* series. This is the second issue of the BAF series edited by the new editorial team consisting of Professors Horst Lörz, University of Hamburg, Hamburg, Germany, Jack Widholm, University of Illinois, Urbana, USA, and Toshiyuki Nagata, University of Tokyo, Tokyo, Japan. This series was originally founded by the late Professor Y.P.S. Bajaj, Delhi, India, in 1986. The current volume is somewhat unique, since in this volume only one plant cell line, the tobacco BY-2 cell line, is handled, while previous volumes mainly dealt with plants having certain economical importance. Nonetheless, the three editors of this volume, Professors Dirk Inzé, Seiichiro Hasezawa and Toshiyuki Nagata, believe that most scientists who are working in the field of plant sciences will enjoy seeing this volume as a kind of source book of the unique tobacco BY-2 cells. Indeed, tobacco BY-2 cells have, over the years, gained the status as a model plant system, comparable to HeLa cells for human research. The current book is very timely because a wealth of basic knowledge on plant cells related to, e.g., cell division, cytoskeleton, cytokinesis, plant hormone signaling, etc., has been gathered from experiments with this cell line. As reflected in the contents, the accumulated knowledge of the BY-2 cell line is enormous and there is no other cell line that has been so important for progress in the plant sciences. Such knowledge should be shared with scientists from the fields of both applied and basic plant science. Furthermore, systematic studies on BY-2 cells are a prerequisite for further progress. Thus, the cell line that has been correctly called the HeLa cells in plant cell cultures should have particular importance.

In this volume, the following themes are handled. In Chapter 1, the early cradle stage in the development of tobacco BY-2 cell line, which has not been previously reported, is described. Chapters 2–5 describe recent progress in cell cycle studies. Chapters 6–9 discuss cell biological aspects, focusing on the dynamic changes in the cytoskeleton. Contributions to physiological and developmental aspects are dealt with in Chapters 10–17. Finally, studies from the viewpoint of molecular biology are described in Chapters 18–22. Thus, many aspects that have not been reported in books or journals so far are presented.

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