

### **Ethylene: Agricultural Sources and Applications**

Muhammad Arshad, William T. Frankenberger, Jr.;  
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Tremendous progress has been made in recent years in the elucidation of the ethylene biosynthetic and perception and transduction pathways and consequently in the understanding of the role of ethylene in plant physiology. On opening the new book entitled "*Ethylene: Agricultural Sources and Applications*", was a pleasant surprise to see that, in parallel with the scientific advances in the area, considerable knowledge has been acquired on the role of ethylene in plant–microbes interactions, microbiology, soil science and ecology, and on the applications of ethylene in agriculture and horticulture. The editors and authors are to be praised for having given emphasis to these novel aspects of ethylene biology that have to date been given far less attention.

The novelty of the approach is clearly apparent upon reading the short preface and the table of contents. The introductory chapter refers essentially to biological and historical points that are familiar to plant scientists.

The book is divided into 8 chapters including the introduction. While Chapter 2, dedicated to ethylene in plant physiology covers all aspects of ethylene biosynthesis and action that can be found in other recent reviews or book chapters, the following chapters are more novel to plant scientists. The biochemistry of microbial production of ethylene (Chapter 3) gives a good insight into metabolic pathways of ethylene synthesis that differ from higher plants. It is easily accessible to non-specialists in the field. Because plants grow in the presence of a variety of microbes (pathogens or not), this chapter is of wide interest to plant physiologists. In contrast, the next chapter (Chapter 4) is quite technical and dedicated to specialists in the field as it reports on factors affecting microbial ethylene production. Also interesting for plant scientists is the chapter on ethylene in soil (Chapter 5) that shows that, depending on the soil conditions, biologically active ethylene levels may be present in the vicinity of roots. The next two chapters (6

and 7) by themselves justify a place for the book in a plant physiologist's library. They extensively report on the role of ethylene in plant–microbe interactions (symbiosis and pathogenicity). The last chapter (8) is devoted to applications of ethylene in agriculture. It includes a section on alterations of ethylene biosynthesis through biotechnology which provides some basic information to newcomers in the field. Too little emphasis is placed, however, on commercial application of inhibitors of ethylene synthesis (AVG) or action ( $\text{Ag}^+$  and 1-methylcyclopropene).

With regards to the form of the book, it is generally more than acceptable except that many figures, particularly in the chapter dedicated to ethylene in plant physiology, are too small to be readable.

In conclusion, the book can be recommended to anyone with an interest in "Plant Science", teachers, graduate students and plant scientists (whether working or not on ethylene) who would like to have an extended and comprehensive view on the role of ethylene in areas such as plant microbe interactions, soil science and applied aspects of the use of ethylene in agriculture, areas other than plant physiology per se.

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