

Contents

Foreword to the Series

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mechanisms involved with either capturing or releasing from components or allocation of these captured resources to growth and storage in the plant itself. In essence, questions of plant physiology affected by environment, which was called plant physiological ecology or ecophysiology. Then, plant physiological ecology is an experimental science that seeks to describe the involved mechanisms that underlie ecological observations in physiological level. This science aims to put the understanding into the physiological process of growth, reproduction, survival, and death of plants due to the interaction between plants with their biotic and abiotic environments (Lambers et al., 1998). The questions involved in ecophysiology first ecology in wider sense because most of them were elicited by agriculture, forestry, and horticulture. So, researchers on plant physiological ecology, on the one hand are the core of theory field, providing insight into physiological mechanisms of ecological difference. On the other hand are in favor of changing growing/reproductive characteristics artificially for human.

There have been two impulses for rapid development of plant physiological ecology, including investigation of the underlying physiological mechanisms involved with observed morphology difference and improvement of agriculture yield. Development of portable equipment for measuring leaf gas exchange enabled ecologists to measure rates of carbon gain and loss by individual leaves (Lambers et al., 1998). Developmental physiology of plants has achieved striking success in elucidating the mechanisms underlying endogenous and induced processes of growth and morphogenesis. These achievements undoubtedly provide more insight into carbon assimilation and allocation, taking up and transport of water and mineral nutrition, chemical role of secondary metabolites, regulation of plant hormones on growth and development, etc (Lambers, 2003).

1.2 Main questions involved with plant physiological ecology

With the rapid development of branches of plant biology, newly developed methods were more and more introduced into the research work of plant physiological