

EFFECT OF PLANT WATER STRESS AND SECONDARY METABOLITES ON THE DEVELOPMENT OF INSECTS

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ABSTRACT

Secondary plant metabolites are usually considered as by-products of the primary metabolic process. Water stress may switch off, increase, or decrease the concentration of these products in plants. The concentration of glucosinolates and other sulfur compounds, cyanogenic glucosides, and alkaloids usually increase with water stress. Terpenoids increase in herbs and shrubs but decrease in trees. However, phenolics do not show a clear trend in concentration with water stress. Secondary plant metabolites have a pronounced effect on the behavior, development and reproduction of insects. The effect of secondary metabolites on different insect species is different depending on plant and insect species involved. It is difficult to make any generalization about this complex interaction. Some chemicals may reduce reproduction, growth, and development in one insect species whereas these may have a favorable effect on other insect species. Depending upon the effect, secondary metabolites are classified as stimulants, attractants, and/or deterrents for oviposition, growth and development. In this paper effect of drought stress on secondary metabolites and consequently on insects is discussed.

INTRODUCTION

In addition to the primary metabolic products, plants also produce myriads of other products, many of which are used by man.

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