ECOLOGICAL ASPECTS OF THE LIGNOTUBER

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ABSTRACT

The development of a lignotuber is a characteristic of many species of sclerophyllous trees and shrubs which have evolved in low nutrient soils and under conditions of increasing aridity. The lignotuber is a woody basal stem swelling possessing numerous dormant buds and possibly some food reserves. Generally, the lignotuber appears to increase the individual plant's capacity to cope with environmental stress, and to maximise the species fitness in an unpredictable environment. Following a period of stress resulting in damage to the existing stem(s), re-sprouting takes place from the previously dormant buds. New above ground organs are produced on the existing efficient root system.

A number of authors consider the lignotuber to be primarily an adaptation to fire. Indeed lignotuberous species recover quickly after fire by resprouting, but most also regenerate from seed. Resprouting appears to be favoured by low-intensity fires whereas high intensity fires may severely damage the lignotuber and enhance seedling regeneration. It is suggested that the effects of a single fire may be imprinted on the vegetation for many decades.

Observations of resprouting of lignotuberous species following other types of stress, including drought, stem breakage, and insect predation, are discussed. It is suggested that the effects of fire cannot be separated from these and other forms of stress in the evolution of the lignotuber.