

V. Rajgopal

ABSTRACTS

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RESPONSE OF COCONUT CULTIVARS UNDER TWO AGRO-CLIMATIC CONDITIONS : LEAF PHOTOSYNTHETIC EFFICIENCY AND BIOCHEMICAL CONSTITUENTS

T. Siju Thomas*, Vinu K. Cherian, S. Naresh Kumar and V. Rajagopal

*Plant Physiology and Biochemistry Section
Central Plantation Crops Research Institute
Kasaragod 671 124, Kerala, India*

Coconut (*Cocos nucifera* L.) is grown in different agro-climatic zones showing varying levels of productivity. It is mainly a rainfed crop, hence experiences drought of different intensities. Large variations exist in nut yield among the genotypes. Gas exchange parameters and leaf biochemical components are sensitive to external factors. Since leaf physiological status is the indicator of plant efficiency, comparisons were made for these parameters in different coconut cultivars grown in two agro-climatic regions (i) Western ghats (hot sub-humid per-humid) represented by Kidu (Karnataka) and (ii) Eastern coastal plains (hot sub-humid) represented by Veppankulam (TamilNadu). Four coconut cultivars, viz. East Coast Tall (ECT), West Coast Tall (WCT), Laccadive Ordinary (LCT) and Choughat Orange Dwarf (COD) of comparable age grown at the two centres were used to study the response of genotypes to weather variables in the two zones. The net photosynthetic rate, stomatal conductance, transpiration rate and biochemical parameters viz. total amino acids, epicuticular wax content and proline were higher in cultivars growing in Kidu than in Veppankulam. However, the palms growing in Veppankulam recorded high instantaneous WUE, total carbohydrates, total proteins and reducing sugars. At Veppankulam the photosynthetic efficiency and WUE of ECT was higher compared to other cultivars, whereas at Kidu the photosynthetic efficiency was higher in COD but WCT had higher WUE. The leaflet biochemical constituents varied among cultivars and with the agro-climatic regions. The results reflect on the possibility of an interaction between G and E for the traits studied.

*Author for correspondence, e-mail: sijut@yahoo.com