

Growth, photosynthesis, chlorophyll content and nutrient partitioning of kenaf as influenced by different levels of carbon

ABSTRACT

The effects of carbon (C) levels on growth, photosynthesis, chlorophyll content, and nutrient partitioning on five kenaf varieties were investigated. Kenaf plants were grown in pots containing sandy beach ridges interspersed with swales (BRIS) soil. Organic carbon at levels of 0, 10, 20, 30, and 40 t ha⁻¹, were applied to the pots. The results showed that plant height, stem diameter, leaf number, leaf area, chlorophyll content and photosynthesis rate increased with an increase in carbon levels up to 20 t ha⁻¹ but decreased with additional increase in carbon levels. The proportion of nitrogen in leaves was minimum at 0 and maximum at 20 t ha⁻¹ carbon levels. In stem and roots, proportion of nitrogen (N) decreased after 10 t ha⁻¹ carbon, while in leaves phosphorus (P), potassium (K), calcium (Ca), and magnesium (Mg) increased after 20 t ha⁻¹. Variety HC2 showed maximum N, P, and K in leaves and total nutrient content.

Keyword: Kenaf varieties; Carbon levels; Growth; Photosynthesis; Chlorophyll content; Nutrient partitioning; BRIS soil