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Vegetative growth and crop water requirement of *Pogostemon heyneanus* Benth. (Lamiaceae) grown under coconut

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Pogostemon heyneanus Benth. (Lamiaceae) is a large, straggling under shrub which is cultivated for its fragrance and other therapeutic benefits. A field experiment was conducted to investigate the effect of shade on *Pogostemon heyneanus* in terms of vegetative growth (plant height, number of leaves, number of branches, branch length, plant spread, and plant girth) and crop water requirement. The study was conducted with two treatments of open field and under matured coconut palms. Treatments were arranged in randomized complete block design with six replicates. Four mini lysimeters were installed as two lysimeres per each treatment in order to find out daily crop coefficients (Kc).

Plants grown under coconut were significantly taller than those grown under full sunlight as the plants grown in shade were found to be more apical dominant than those grown in full sunlight. This increased epical dominance would be a reason for the significant reduction in total branches in shade grown plants as it reduces the immergence of new shoots. The cooler micro climate under the shade of mature coconut palms resulted in a significantly higher number of leaves in shade grown plants than those grown in full sunlight. A significantly higher growth was observed in shade grown plants in terms of branch length than those grown under full sun light. This would be mainly due to the elongation in internode length of shade grown plants in order to capture more sunlight. The greater significant spread of plants found under shade could be explained by their higher growth in terms of increased plant height, total number of leaves, and length of branches than the plants grown under full sun light. Light intensity had no effect on plant girth since throughout the study, change in plant girth remained non-significant. Further, reduced crop water use was observed in plants grown under the shade as the logarithmic trend in crop coefficient (Kc) values are lower in shade grown plants than in plants grown under full sunlight.

According to the results, *Pogostemon heynea*nus could be successfully cultivated under the shade of mature coconut palms. However, further studies on herbage yield, oil content, oil composition, secondary metabolite content and bioactivity are needed in order to ensure the final yield and make recommendations.

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