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Effect of different spacing fertilizer treatments on physical and chemical yield of different plant parts of *Pogostemon heyneanus* Benth.

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Pogostemon heyneanus Benth. (Lamiaceae) is an aromatic, industrial crop, widely cultivated in many Asian countries for its distinguished fragrance and other therapeutic purposes. The present study was undertaken to determine the effect of different spacing and fertilizer treatments on physical and chemical yield (total antioxidant capacity (TAC), total phenol content (TPC) and total flavonoid content (TFC)) of different parts (leaf, stem,androot) of *Pogostemon heyneanus.* Nine treatment combinations consisting of three levels of space (S1: 90cm×45cm, S2: 90cm×60cm and S3: 90cm×90cm) and three type of fertilizer treatments (F1: Organic, F2: Inorganic, and F3: Control) were used for the field experiment in a completely randomized block design with three replicates. The plant growth parameters such as height, canopy spread, number of leaves, number of branches, and length of branches were recorded at two weeks intervals. The fresh weight and the dry weight of leaves, stems and roots of uprooted plants were recorded in each month. TPC, TFC and TAC of leaf, stem,and root were determined by the colorimetric Folin-Ciocalteu method, Aluminium Nitrate method and Ferric Reducing Antioxidant Power (FRAP) assay, respectively. The highest number of leaves (928±6.2), leaf area (9484±4.9cm^2), leaf fresh weight (516.2±4.9g), leaf dry weight (70.3±0.7g), TAC (56.7±0.43 (mg TE/ g DW),)TPC (11.6± 0.25 mg/GAE/gDW), and TFC (86.1±2.83mg/RE/g DW) were observed in treatment combination S3F1. The order of increasing TPC, TFC and TAC of *P. heyneanus*was leaf > root > stem. Therefore, it can be suggested to use 90cm×90cm level of spacing (S3) and organic fertilizer (Compost) (F1) to cultivate*P. heyneanus* plants on a commercial scale. The presence of a higher amount of dry matter content and chemical yield (TPC, TFC and TAC) in the leaves indicated the usage of leaves for the development of effective drugs, instead of roots and stem.

Key words: Growth parameters *Pogostemon heyneanus*, total antioxidant capacity, total phenol and flavonoid content.

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