

ABSTRACT

Tea is a plantation crop that has been cultivated since 1839 in Assam and has high popularity among society. Tea cultivation is always improved to maintain a good quality and productivity to meet the community demands. However, these efforts still encountered several problems, one of which was drought stress that can reduce the tea yield. Production tea is usually propagated by cuttings, while drought resistance selection is usually carried out on seedling from the seed. In this study, the selection will be tried using seedling from cutting methods. This study aims to determine the morphological responses and total phenol content of tea seedlings under drought condition, determine the tolerance limits of tea seedlings against drought stress, and find out prospective clones that reflected their parent's resistances during the seedling stage of vegetative propagation. The research was conducted in PT Pagilaran's polyclonal garden screen house in July-November 2018. This study used factorial design 3x7 with 3 replications. Drought stress treatment is the first factor with 3 levels, which are watering to field capacity at intervals of 3 days, 7 days, and 14 days. Then the types of tea clones is the second factor consisting of clones PGL 9, PGL 10, PGL 15, GMB 3, GMB 7, GMB 9, and TPS. Observations included measurements of canopy and root growth, as well as total phenol content of leaves of tea seedlings. The quantitative data collected was tested using factorial variance analysis and Scott-Knott's advanced test with a confidence level of 95%. Overall, drought stress inhibits growth and affects the total phenol content of tea seedlings whose results are different for each clone. The results of the stress tolerance index (STI) calculation value based on several root growth variables and total phenol content indicate that the seedling of PGL 9, PGL 15, and GMB 3 clones are more likely resistant to drought stress compared to other clones.

Keywords: tea seedlings, drought stress, watering, total phenol content, vegetative propagation, cutting

INTISARI

Teh merupakan tanaman perkebunan yang telah dibudidayakan sejak tahun 1839 di Assam dan memiliki popularitas yang tinggi di kalangan masyarakat. Untuk itu teh selalu dikembangkan agar memiliki mutu dan hasil yang baik untuk memenuhi permintaan masyarakat. Akan tetapi, upaya tersebut masih menemui beberapa permasalahan, salah satunya yaitu permasalahan cekaman kekeringan yang dapat menurunkan daya hasil. Teh produksi biasa diperbanyak dengan stek, sedangkan seleksi ketahanan kekeringan biasanya dilakukan pada bibit asal biji. Dalam penelitian ini, seleksi akan dicoba menggunakan bibit asal stek. Penelitian ini bertujuan untuk mengetahui tanggapan morfologis dan kadar fenol total bibit tujuh klon teh pada kondisi tercekam kekeringan, mengetahui batas ketahanan tiap bibit tujuh klon teh terhadap cekaman kekeringan, dan mengetahui bibit hasil perbanyakan vegetatif yang mencerminkan sifat ketahanan tanaman induknya. Penelitian dilakukan di *screen house* kebun poliklonal PT Pagilaran pada bulan Juli-November 2018. Penelitian ini menggunakan rancangan faktorial 3x7 dengan 3 ulangan. Perlakuan cekaman kekeringan sebagai faktor pertama dengan 3 aras, yaitu penyiraman hingga kapasitas lapang dengan selang 3, 7, dan 14 hari. Kemudian jenis klon teh sebagai faktor kedua yang terdiri dari calon klon PGL 9, PGL 10, PGL 15 dan klon GMB 3, GMB 7, GMB 9, serta TPS. Pengamatan meliputi pengukuran pertumbuhan tajuk dan akar, serta kadar fenol total daun bibit teh. Data kuantitatif yang terkumpul diuji menggunakan analisis ragam faktorial dan uji lanjut Scott-Knott dengan taraf nyata 5%. Secara keseluruhan, cekaman kekeringan menghambat pertumbuhan dan mempengaruhi kadar fenol total bibit teh yang hasilnya berbeda pada tiap klon. Hasil perhitungan nilai *stress tolerance index* (STI) berdasarkan beberapa variabel pertumbuhan akar dan kadar fenol total menunjukkan bahwa bibit calon klon PGL 9, PGL 15, dan klon GMB 3 lebih tahan terhadap cekaman kekeringan dibandingkan klon lainnya.

Kata kunci: bibit teh, cekaman kekeringan, penyiraman, kadar fenol total, perbanyakan vegetatif, stek