



## Intisari

Tanaman cabai merah dapat mengalami kehilangan daun sebagai sumber proses fotosintesis akibat serangan hama, kekeringan, dan suhu tinggi sehingga kehilangan daun dapat mempengaruhi proses fisiologis dan hasil tanaman. Defoliiasi merupakan kegiatan penghilangan sebagian daun pada tanaman yang dapat dikaji pengaruhnya terhadap fisiologi tajuk dan hasil cabai merah. Tujuan penelitian ini yaitu mengetahui respon fisiologi tajuk dan hasil setiap varietas cabai merah terhadap perlakuan defoliiasi. Penelitian ini dilaksanakan pada bulan Juni – Desember 2021 di Kebun Tridharma Banguntapan, Fakultas Pertanian UGM, Bantul, Yogyakarta dengan ketinggian tempat  $\pm 100$  mdpl ( $7^{\circ}48'16.0''S$   $110^{\circ}24'44.7''E$ ). Percobaan disusun dalam rancangan acak kelompok lengkap dengan 2 faktor dan 3 blok sebagai ulangan. Faktor pertama yaitu varietas cabai merah yang terdiri dari Kencana, Lembang-1, Tanjung-2, dan Ungara. Faktor kedua yaitu intensitas defoliiasi yang terdiri dari tanpa defoliiasi (0%), 20%, 40%, dan 60%. Data yang diamati antara lain mikroklimat, fisiologi (jumlah daun, laju pertumbuhan jumlah daun, tinggi tanaman, diameter batang, luas daun, indeks luas daun, kadar air nisbi, klorofil, laju asimilasi bersih, laju pertumbuhan tanaman, bobot segar dan kering, indeks panen), dan hasil (jumlah buah per tanaman, bobot segar buah per tanaman, dan produktivitas). Data dianalisis dengan analisis ragam dengan taraf kepercayaan 95% dan diikuti oleh uji jarak berganda *Duncan's multiple range test* taraf kepercayaan 95% jika terdapat perbedaan antar perlakuan. Hasil penelitian menunjukkan bahwa defoliiasi 20% hingga 60% meningkatkan proses fisiologis tajuk semua varietas hingga mendekati tanaman tanpa defoliiasi. Oleh karena itu, semua varietas mampu melakukan pemulihan terhadap jumlah daun dan mempertahankan luas daun, indeks luas daun, kadar air nisbi, klorofil, laju asimilasi bersih, laju pertumbuhan tanaman, bobot segar dan kering tanaman sehingga mempunyai jumlah buah per tanaman, bobot segar buah per tanaman, dan produktivitas yang mendekati dengan tanaman tanpa defoliiasi. Rerata produktivitas Kencana, Lembang-1, Tanjung-2, dan Ungara dengan perlakuan defoliiasi 20% hingga 60% masing-masing sebesar 11,44 ton/ha, 16,17 ton/ha, 9,44 ton/ha, dan 9,38 ton/ha. Rerata produktivitas Kencana, Lembang-1, Tanjung-2, dan Ungara tanpa defoliiasi masing-masing sebesar 12,27 ton/ha, 17,32 ton/ha, 12,80 ton/ha, dan 6,85 ton/ha.

Kata kunci: defoliiasi, fisiologi, hasil, varietas.



## Abstract

Red chili plants can lost leaves as a source of photosynthesis due to pest attacks, drought, and high temperatures which will effect on physiological processes and yields. The defoliation is partial removal of the leaves on a plant which can be studied in effecting on canopy physiology and yield of red chili. The purpose of this research was to determine the canopy physiological response and yield of each red chili variety to defoliation treatment. This research was conducted in June–December 2021 at the Tridharma Banguntapan experimental station, Faculty of Agriculture UGM, Bantul, Yogyakarta with altitude of  $\pm 100$  msl ( $7^{\circ}48'16.0''$ S  $110^{\circ}24'44.7''$ E). This research consisted of 2 factors with 3 replications arranged in a randomized complete block design. The first factor was the variety which consist of Kencana, Lembang-1, Tanjung-2, and Ungara. The second factor was the intensity of defoliation which consist of control (0%), 20%, 40%, and 60%. The data observed were included microclimate, physiologies, and yields. Data were analyzed by analysis of variance at 95% significance level and followed by multiple range test of duncan's multiple range test at 95% significance level if there were differences among treatments. The results showed that the defoliation rate of 20% to 60% increased the canopy physiology of all varieties closed to that of plant without defoliation. All varieties recovered the number of leaves and maintain leaf area, leaf area index, relative water content, chlorophyll, net assimilation rate, crop growth rate, fresh and dry weights of plant so that they had the number of fruits plant, fresh fruit weight, and productivity closed to that of plant without defoliation. The average productivity of Kencana, Lembang-1, Tanjung-2, and Ungara with defoliation rate of 20% to 60% were 11.44 tons/ha, 16.17 tons/ha, 9.44 tons/ha, and 9.38 tons/ha. The average productivity of Kencana, Lembang-1, Tanjung-2, and Ungara without defoliation were 12.27 ton/ha, 17.32 ton/ha, 12.80 ton/ha, and 6.85 ton/ha.

Key words: defoliation, physiologies, yields, varieties.