# INTISARI
# KARAKTERISTIK MORFOLOGI DAN FISIOLOGI TANAMAN SELADA (*Lactuca sativa L.*) AKIBAT PEMAPARAN MUSIK PADA PENERAPAN TEKNOLOGI *SONIC BLOOM*

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Penelitian ini dilatarbelakangi oleh faktor produktivitas tanaman pangan yang kian menjadi sorotan utama sebagai indikator keberlanjutan pertanian, dimana cakupannya meliputi kondisi morfologi dan fisiologi tanaman. Salah satu upaya peningkatan produktivitas tanaman pangan hortikultura, khususnya selada, adalah dengan teknologi *sonic bloom* dimana tanaman diberi nutrisi beserta getaran dari bunyi. Kombinasi aplikasi ini dengan variasi musik diharapkan mampu meningkatkan produktivitas tanaman selada.

Penelitian ini bertujuan untuk menganalisis pengaruh pemaparan musik pada penerapan teknologi *sonic bloom* terhadap morfologi dan fisiologi tanaman selada (*Lactuca sativa L.*), serta membandingkan perlakuan mana yang paling baik untuk diaplikasikan. Pada penelitian ini, digunakan rancangan acak kelompok dengan subyek tanaman selada (*Lactuca sativa L.*). Observasi dilakukan pada 96 *polybag* tanaman selada (*Lactuca sativa L.*) yang dibagi menjadi 6 kelompok perlakuan, serta 2 kelompok kontrol. Perlakuannya meliputi 3 jenis musik yakni *trailer*, *classic*, dan *jazz* pada intensitas pemaparan tinggi (89 – 110 dB) dan rendah (70 – 80 dB) selama 3 jam per hari dalam 21 hari. Data yang direkam meliputi pertambahan tinggi dan daun kumulatif, luas daun, pembukaan stomata yang meliputi densitas, persentase dan lebar pembukaan, serta laju konsumsi $CO_2$.

Hasilnya, diperoleh perbedaan antar perlakuan pada tiap parameter antara lain tinggi tanaman (p= 0,000), pertambahan daun (p=0,451), densitas pembukaan stomata (p=0,017), persentase pembukaan stomata (p=0,006), dan lebarnya (p=0,000), laju konsumsi $CO_2$ (p=0,000) serta koefisien serapan $CO_2$ (p=0,021). Diperoleh pula korelasi hubungan antara intensitas pemaparan dengan tiap parameter, yakni sebesar 0,98 hingga 1.

Diketahui pula penerimaan energi musik terakumulasi yakni sebesar 11,92% dari total energi yang terpancarkan pada 12 posisi peletakan tanaman. Berdasarkan uji *mean*, musik yang paling optimal untuk perkembangan morfologi dan fisiologi selada (*Lactuca sativa L.*) adalah musik Classic Tinggi. Sementara itu, terdapat hubungan erat ($R \geq 0,9$) antara intensitas pemaparan dengan setiap parameter yang diamati.

**KATA KUNCI:***Sonic Bloom*; Musik; *Lactuca sativa L.*; Stomata; Konsumsi $CO_2$;
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# ABSTRACT
# MORPHOLOGICAL AND PHYSIOLOGICAL CHARACTERISTICS OF LETTUCE (*Lactuca sativa L.*) AS A RESULT OF MUSIC USAGE ON THE APPLICATION OF SONIC BLOOM TECHNOLOGY

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The background of this research is that crop productivity, includes morphological and physiological conditions of the crop itself, increasingly become a major focus as an indicator of the agricultural sustainability. One of the methods that is able to increase the crop productivity, especially lettuce (*Lactuca sativa L.*), is by applying the sonic bloom technology, where the crops are directly exposed by vibration from the sound, besides giving additional nutrients. Better yields and productivity of lettuce are expected by combining this application with music as an independent variables.

The aim of this research is to analyze the effects of music usage on the application of sonic bloom technology towards morphological and physiological characters of lettuce (*Lactuca sativa L.*), beside comparing which treatment is the best for being applied. In this research, the observer used a randomized block design with lettuce (*Lactuca sativa L.*) as the subject. The observations were carried out to 96 polybags of lettuces (*Lactuca sativa L.*), which had been divided to 6 treatment groups and 2 control groups. The treatments included 3 music genres, such as trailer, classic, dan jazz, that is exposed in high (89 – 110 dB) and low intensity (70 – 80 dB). Data that had been recorded were crops height and cumulative leaves accretion, leaf area, stomatal opening aspects included density, percentage, and the width of the opening, also the rate of $CO_2$ consumptions.

The differences (p-value) between groups from each parameter are obtained, such as crops height (0.000), cumulative leaves accretion (0.451), density of stomatal opening (0.017), percentage of stomatal opening (0.006), width of stomatal opening (0.000), rate of $CO_2$ consumptions (0.000) and coefficient of $CO_2$ absorption (0.021) The correlation between treatment to each parameters are start from 0.98 to 1.

The average of accumulative energy that has been earned by each position is 11.95% from the total energy that is exposed. The best music which is optimally able to increase the rate of morphological and physiological accretions is classical music (based on mean-test). Meanwhile, the correlation between the music intensity to the overall parameters are close enough ($R \geq 0.9$).

**KEYWORDS:** Sonic Bloom; Music; *Lactuca sativa L.*; Stomata; $CO_2$ consumption;