

DIVERSITAS SERANGGA PADA BERBAGAI TINGKAT KESEHATAN TANAMAN SENGON (*Falcataria moluccana* (Miq.) Barneby & JW Grimes)

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Abstrak

Stres tanaman akibat serangan Organisme Perusak Tanaman (OPT) menimbulkan dampak ekologi maupun ekonomi. Pemanfaatan serangga sebagai bioindikator dan musuh alami menjadi langkah awal untuk melihat kondisi kesehatan ekosistem dan pengendalian terhadap serangan OPT. Informasi komunitas serangga penting untuk menentukan peran berbagai serangga pada ekosistem. Penelitian ini bertujuan untuk mengetahui komunitas serangga pada tanaman sengon muda secara umum maupun pada tingkat kesehatan berbeda, dan faktor yang memengaruhi kemelimpahannya pada tiga waktu pengamatan.

Pengambilan data dilakukan pada tanaman sengon tiga tahun di Kepuharjo, Cangkringan, Sleman bulan Maret-Mei 2018. Pohon sampel ditentukan dengan metode *purposive sampling* berdasarkan tingkat kesehatan sengon: sehat, sakit ringan, dan sakit berat. Penentuan tingkat kesehatan sengon berdasarkan keberadaan karat puru pada seluruh bagian tanaman. Terdapat total 15 pohon sampel yang terdiri dari 5 pohon pada masing-masing tingkat kesehatan. Koleksi serangga dilakukan pada masing-masing pohon sampel dengan metode *knocking down* dan bantuan aspirator. Serangga diamati jenis dan jumlahnya kemudian diidentifikasi sampai tingkat morfospecies. Data dianalisis menggunakan Indeks Keanekaragaman, Indeks Kemerataan, Indeks Kesamaan, dan Analisis Varian (ANOVA). Analisis kadar air dan kandungan nitrogen dilakukan pada bagian daun dan ranting tanaman pada setiap pohon sampel.

Hasil penelitian menunjukkan bahwa komunitas serangga pada tanaman sengon muda terdiri dari 7 ordo, 27 famili, 43 jenis, dan 603 individu. Terdapat perbedaan komunitas serangga pada masing-masing tingkat kesehatan sengon. Sengon dengan sakit berat menunjukkan diversitas serangga (jumlah dan jenis) tertinggi yaitu 5 ordo, 19 famili, 33 jenis, dan 253 individu. Masing-masing famili serangga memberikan respon berbeda terhadap waktu pengamatan dan tingkat kesehatan. Perubahan suhu dan kelembaban selama waktu pengamatan berpengaruh signifikan terhadap kemelimpahan Psyllidae dan Cicadellidae. Psyllidae melimpah saat suhu udara menurun, sedangkan Cicadellidae melimpah saat kelembaban udara rendah. Tingkat kesehatan berpengaruh signifikan terhadap Formicidae dan Pieridae. Formicidae melimpah pada sengon sehat, sedangkan Pieridae melimpah pada sengon dengan sakit berat.

Kata kunci: Kesehatan Ekosistem, Komunitas, Serangga, Stres Tanaman, Sengon

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Falcataria moluccana (Miq.) Barneby & JW Grimes

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Abstract

Plants under stress due to organisms have impacts on ecological and economic aspects. Utilization of insects as bioindicators and natural enemies could be the first step to assess health condition of ecosystems and to control against pest attacks. Information of insect community is important for identifying the role of various insects in the ecosystem. This study aims to determine the insect community on young sengon plants in general and at different health levels, and factors that affect their abundance at three observation times.

Data were collected from a three-year sengon plantation in Kepuharjo, Cangkringan, Sleman during March-May 2018. The sample tree was determined by using purposive sampling method based on health levels of sengon: healthy, healthy mildly ill, and high severely ill. Determination of the health level of sengon was based on the presence of gall rust on all parts of the plant. There were 15 sample trees in total consisting of 5 trees at each health level. Insect collection was carried out on each sample tree by knocking down method using aspirator. Species, individual number, and identification of insect were then observed. Data were analyzed using the Diversity Index, Evenness Index, Similarity Index and Analysis of Variance (ANOVA). Analyses of water and nitrogen content were carried out on leaves and branches of each sample tree.

The results showed that the insect community in young sengon plants consisted of 7 orders, 27 families, 43 species, and 603 individuals. There were differences in insect community at each health level of sengon. Severely ill sengon showed the highest diversity of insects (both in numbers of individual and species). Each family of insects responded differently to observation time and health level. Changes in temperature and humidity during observation time affected significantly the abundance of Psyllidae and Cicadellidae. Psyllidae was abundant when temperature decreased, while Cicadellidae was abundant when humidity low. Health level affected significantly the abundance of Formicidae and Pieridae. On healthy sengon, Formicidae was the highest, while on the highest, while on severely ill sengon, Pieridae was abundant.

Keywords: Ecosystem Health, Community, Insects, Plant Stress, Sengon

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