Serangan Hama Kutu Lilin (*Pineus boerneri* Annand.) pada Tanaman Uji Keturunan *Pinus merkusii* generasi II Umur 9 Tahun di Tampomas Sumedang

INTISARI

Penelitian bertujuan untuk mengetahui tingkat serangan kutu lilin, mendapatkan informasi keberadaan famili dan individu pohon resisten/toleran kutu lilin, mengetahui hubungan tingkat serangan dengan pertumbuhan dan produksi getah, serta perbedaan kandungan metabolit sekunder (terpen) antar tingkat serangan.Penelitian dilakukan di tanaman uji keturunan *half-sibPinus merkusii* generasi II subline III di RPH Tanjungkerta, BKPH Tampomas, KPH Sumedang. Tanaman uji keturunan menggunakan rancangan *incompletely block* dengan *row-column design*, terdiri atas 96 famili, 4 treeplot dan 6 replikasi. Sejak tahun 2004, tanaman uji keturunan telah terserang hama kutu lilin. Variabel yang diukur adalah tingkat serangan berdasarkan jumlah bintik wol kutu lilin pada pucuk ranting, diameter (dbh), dan produksi getah (rerata dari 5 kali pengambilan getah dengan menggunakan bor, diameter bor 1 cm, ketinggian 70 cm).

Hasil penelitian menunjukkan tingkat serangan kutu lilin mencapai 99,71% dengan intensitas serangan ringan - menengah. Terdapat perbedaan tingkat serangan antar famili ($p<0,05$), sedangkan untuk variabel diameter tidak ada perbedaan signifikan antar famili. Nilai heritabilitas individu tingkat serangan sebesar 0,14 dan heritabilitas famili tingkat serangan sebesar 0,25. Serangan hama hama kutu lilin tidak memberikan dampak yang signifikan pada pertumbuhan (diameter) pada famili-famili yangdiuji, termasuk famili-famili yang tergolong paling rentan (serangan parah). Serangan kutu lilin belum mempengaruhi produksi getah. Kandungan relatif senyawa metabolit sekunder : monoterpen, sesquiterpen, dan diterpen pada penutupan lilin 3% lebih tinggi daripada tingkat penutupan 23% ($p>0,05$), yang mengindikasikan bahwa kandungan metabolit sekunder yang lebih tinggi dapat menghasilkan tanaman lebih resisten. Komponen monoterpen dan sesquiterpen terlibat dalam mekanisme pertahanan terimbas (*induced defense*), terutama senyawa germacrene ($p<0,05$) sedangkan komponen diterpen lebih terlibat dalam mekanisme pertahanan statis (*constitutive defense*) ($p<0,05$).

Kata kunci : kutu lilin, *Pinus merkusii*, uji keturunan, heritabilitas, metabolit sekunder, terpen.

Infestation of Pine Woolly Aphid (*Pineus boerneri* Annand.) at the Second Generation of Progeny Test of *Pinus merkusii* in Tampomas Sumedang

ABSTRACT

The study aims to know the infestationof the pine woolly aphid, to find family and individual trees that relative resistant to the pine wooly aphid, to know correlation between the pine woolly aphid infestation, growth, and the resin yield, and the difference of the secondary metabolites, i.e. terpene atthe various infestation. The study was conducted on the halfsib 2nd generation progeny test of *Pinus merkusii*at the third subline, 9 years old, RPH Tanjungkerta, BKPH Tampomas, KPH Sumedang. The progeny test use the incomplete block design with row column design. The plants were planted in six replications (block), it consists of 96 families, and four treeplot. Since 2004, the progeny test had been infested by pine woolly aphid. The measured variables were the the attack level by counting the number of the white woolly wax spots that covering bark of the young twigs, diameter at the breast height (130 cm), and the average of resin yield from the various attack level (5 times drilling, using drill bit 10 mm at 70 cm from ground).

The study showed that the infestation of pine woolly aphid had reached 99,71%, with the attack level was light until medium. There are the difference of the attack level among the families ($p<0,05$), while there are no significant differences of diameter among families. The individual heritability value for the infestation variable is 0.14, while the family heritability value is 0.25. The infestation of pine woolly aphid give no significant impact on the diameter growth of the tested families, also the to the susceptible families.The infestation of pine woolly aphid didn't affect yet to the resin yield. The relative contents of monoterpenes, sesquiterpenes, and diterpenes compounds on the covering the woolly massses 3% were higher than on a 23% suggested that the higher secondary metabolites could yield the plants more resistant. Monoterpenes and sesquiterpenes had contribute in the induced defense mechanism against the pine woolly aphid attack, especially germacrene ($p<0.05$), while diterpenes more contributed in the constitutive/static defense mechanism ($p<0.05$).

Key words: pine woolly aphid, *Pinus merkusii*, progeny test, heritability, the secondary metabolites, terpenes.