

## **PENGARUH SUHU DAN LAMA WAKTU PEMASAKAN TERHADAP RENDEMEN DAN KUALITAS TERPENTIN**

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### **INTISARI**

Gondorukem dan terpentin merupakan produk hasil hutan non kayu dari getah *Pinus merkusii* dengan nilai jual yang tinggi. Kualitas gondorukem dan terpentin dipengaruhi oleh kualitas getah pinus dan proses pengolahan getah menjadi gondorukem dan terpentin. Pengolahan getah menjadi gondorukem dan terpentin dipengaruhi oleh faktor kebersihan alat, suhu, dan lama waktu pemasakan agar terpentin yang dihasilkan sesuai standar. Oleh karena itu perlu dilakukan penelitian lebih lanjut mengenai pengaruh suhu dan waktu pemasakan rendemen dan kualitas terpentin. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh suhu dan lama waktu pemasakan terhadap rendemen, sifat fisik, dan komponen kimia minyak terpentin.

Penelitian ini dilakukan dengan menggunakan percobaan dua faktor dengan rancangan dasar Rancangan Acak Lengkap. Faktor pertama yaitu suhu pemasakan masing-masing 130°C dan 170°C, sementara faktor kedua yaitu lama waktu pemasakan masing-masing 45 menit, 75 menit, dan 105 menit. Selanjutnya dilakukan pengujian kualitas serta komponen kimia minyak terpentin yang dihasilkan.

Hasil penelitian menunjukkan bahwa rendemen minyak terpentin yang dihasilkan berkisar antara 6,13-8,35%. Rendemen mengalami kenaikan seiring dengan bertambahnya suhu pemasakan dan waktu pemasakan. Minyak terpentin memiliki warna dan bau yang seragam yakni warna jernih kekuningan dan bau khas terpentin. Bobot jenis berkisar antara 0,858-0,865. Indeks bias berkisar antara 1,462-1,463. Bilangan asam berkisar antara 0,60-1,27. Putaran optik berkisar antara (+34,5) – (+41,5). Sisa penguapan berkisar antara 0,68-1,27%. Sementara kadar *alpha-pinene* berkisar antara 82,12-86,87%, *beta-pinene* sebanyak 3,2-4,72%, dan *2-carene* sebanyak 2,19-3,65%. Perbedaan nilai pada pengujian sifat fisik yang diperoleh dipengaruhi oleh perbedaan komponen kimia penyusun minyak terpentin yang disebabkan perbedaan suhu dan waktu pemasakan.

**Kata kunci:** terpentin, suhu pemasakan, lama waktu pemasakan, rendemen, kualitas terpentin

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## **EFFECTS OF DISTILLATION TEMPERATURE AND DURATION ON YIELD AND TURPENTINE QUALITY**

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### **ABSTRACT**

Gum rosin and turpentine are non-timber forest products from *Pinus merkusii* sap with high selling value. The quality of gum rosin and turpentine is influenced by the quality of pine resin and the processing the resin into gum rosin and turpentine. The processing of resin is influenced by the cleanliness of the equipment, temperature, and distillation duration. Therefore, it is necessary to conduct further research on the effect of temperature and distillation duration on yield and turpentine quality. The purpose of this research was to determine the effect of distillation temperature and distillation duration on yield, physical properties, and chemical components of turpentine oil.

This research was conducted using two-factor experiment with a Completely Randomized Design. The first factor is the distillation temperature of 130°C and 170°C, while the second factor is the distillation duration of 45 minutes, 75 minutes, and 105 minutes. Furthermore, the quality and chemical components of the turpentine oil produced were tested.

The results showed that the yield of turpentine oil produced ranged from 7.10-9.69%. The yield increased along with the increase in distillation temperature and distillation time. Turpentine oil has a similar color and odor, namely a clear yellowish color and a distinctive smell of turpentine. Specific gravity ranged from 0.858-0.865. The refraction index ranged from 1.462-1.463. Acid value ranges from 0.60-1.27. Optical rotation ranges between (+34.5)-(+41.5). Residual evaporation ranged from 0.68-1.27%. The *alpha-pinene* content ranged from 82.12-86.87%, *beta-pinene* from 3.2-4.72%, and *2-carene* from 2.19-3.65%. The difference in values on the test of physical properties influenced by differences in the chemical components that make up turpentine oil due to differences in distillation temperature and duration.

**Keywords:** turpentine, distillation temperature, distillation duration, yield, turpentine quality

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