

PENGARUH SUHU DAN LAMA PROSES ESTERIFIKASI TERHADAP PRODUK ESTERIFIKASI GONDORUKEM MALEAT

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INTISARI

Hasil Hutan Non-Kayu mempunyai berbagai produk olahan dengan nilai jual yang tinggi, salah satunya adalah gondorukem. Gondorukem merupakan produk dari hasil sadapan getah pohon pinus (*Pinus merkusii*) yang diolah lebih lanjut. Gondorukem mudah mengalami proses degradasi dan teroksidasi sehingga menyebabkan kualitasnya menurun. Penurunan kualitas dapat ditingkatkan dengan modifikasi gondorukem dengan teknik fortifikasi dan esterifikasi.

Gondorukem modifikasi dilakukan melalui proses fortifikasi dan esterifikasi dengan menambahkan asam maleat dan gliserol. Modifikasi gondorukem menghasilkan ester gliserol gondorukem maleat yang mempunyai yang lebih stabil. Karakteristik bahan baku pembuatan ester gliserol gondorukem maleat dilakukan dengan pengujian kualitas titik lunak, bilangan asam, kadar bahan tak larut dalam toluena dan kadar abu, yang dilakukan secara duplo. Proses esterifikasi menggunakan suhu pada taraf (280°C, 320°C dan 360°C) serta lama waktu pemasakan pada taraf waktu (3 jam, 2 jam, dan 1 jam). Pengujian kualitas dilakukan pada ester gliserol gondorukem maleat.

Hasil penelitian menunjukkan bahwa peningkatan suhu dan pengurangan lama waktu esterifikasi berpengaruh signifikan terhadap nilai titik lunak dan bilangan asam ester gliserol gondorukem maleat. Pada pengujian kualitas lainnya tidak berpengaruh signifikan terhadap nilai kadar bahan tak larut dalam toluena, kadar abu dan rendemen produk ester gliserol gondorukem maleat. Peningkatan suhu pada 360°C dan pemasakan selama 2 jam mempengaruhi ester gliserol gondorukem maleat dengan titik lunak semakin tinggi dan bilangan asam semakin rendah.

Kata kunci : *gondorukem, gondorukem modifikasi, gliserol, asam maleat, fortifikasi, esterifikasi, ester gliserol gondorukem maleat*

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THE EFFECT OF TEMPERATURE AND LENGTH OF THE ESTERIFICATION PROCESS ON THE ESTERIFICATION PRODUCT OF GONDORUKEM MALEAT

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ABSTRACT

Non-Timber Forest Products have various processed products with high selling value, one of which is gondorukem. Gondorukem is a product from tapping the sap of pine trees (*Pinus merkusii*) which is further processed. Gondorukem easily undergoes degradation and oxidization processes, causing its quality to decrease. The reduction in quality can be improved by modifying gondorukem with fortification and esterification techniques.

Modified Gondorukem is carried out through a fortification and esterification process by adding maleic acid and glycerol. Modification of gondorukem produces glycerol ester of gondorukem maleate which is more stable. Characteristics of the raw material for making gondorukem maleate glycerol ester were carried out by testing the quality of soft point, acid number, content of insoluble substances in toluene and ash content, which was carried out in duplicate. The esterification process uses temperature levels (280°C, 320°C and 360°C) and cooking time at time levels (3 hours, 2 hours and 1 hour). Quality testing was carried out on gondorukem maleate glycerol ester.

The results showed that increasing the temperature and reducing the esterification time had a significant effect on the soft point value and the glycerol ester value of gondorukem maleic acid. In other quality tests, there was no significant effect on the value of the insoluble material content in toluene, the ash content and the yield of the glycerol ester product gondorukem maleate. Increasing the temperature to 360°C and cooking for 2 hours affects the glycerol ester of gondorukem maleate with a higher softening point and a lower acid number.

Keyword: gondorukem, modified gondorukem, glycerol, maleic acid, fortification, esterification, glycerol ester of rosin maleic

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