

ISOLASI SITRONELEL, SITRONELOL DAN GERANIOL DARI  
MINYAK **SEREH** WANGI DENGAN DISTILASI FRAKSINASI  
PENGURANGAN TEKANAN  
**SERTA SINTESIS HIDROKSISITRONELEL**

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**INTISARI**

Telah dilakukan isolasi sitronelal, sitronelel, geraniol dari minyak serih wangi dengan distilasi fraksinasi pengurangan tekanan dan sintesis hidroksisitronelel. Hidrasi ikatan rangkap sitronelal menjadi hidroksisitronelel dilakukan dengan metode oksimerkurasi-deinerkurasi. Pembentukan asetal dilakukan untuk melindungi gugus aldehid.

Sintesis hidroksisitronelel telah dilakukan melalui tahapan reaksi: 1) oksimerkurasi, 2) pembuatan asetal sebagai langkah melindungi gugus fungsi aldehid, 3) demerkurasi dan 4) hidrolisis asetal. Oksimerkurasi sitronelal dilakukan dengan merkuri asetat dalam media dietil eter pada suhu kamar selama 1 jam. Produk oksimerkurasi direaksikan dengan etilen glikol dan asam-p-toluen sulfonat sebagai katalis selama 12 jam untuk pembuatan asetal. Demerkurasi dilakukan dengan natrium borohidrida dalam suasana basa selama 3 jam pada suhu kamar. Hidrolisis asetal dilakukan dengan larutan asam sulfat 10% v/v pada suhu 50° C selama 45 menit.

Dari distilasi fraksinasi pada 35 mmHg terhadap 500 g minyak serih wangi, sitronelal diperoleh sebanyak 10 g dengan kemurnian 81,30% ( $t_d = 40^\circ\text{C}$ ), 210 g dengan kemurnian 99,14% ( $t_d = 100-120^\circ\text{C}$ ) dan ditambah hasil dari distilasi residu minyak serih wangi pada 35 mmHg sebanyak 17 g dengan kemurnian 95,79% ( $t_d = 120^\circ\text{C}$ ). Rodinol diperoleh dari distilasi fraksinasi residu minyak serih wangi pada 35 mmHg dan suhu 120-140° C sebanyak 135 g dengan kandungan sitronelel 32,34% dan geraniol 52,45%. Pada penelitian ini, hidroksisitronelel dihasilkan dengan rendemen keseluruhan 65,94%.

**TITLE ISOLATION OF CITRONELLAL, CITRONELLOL, GERANIOL  
FROM CITRONELLA OIL BY FRACTIONAL DISTILLATION  
UNDER REDUCED PRESSURE  
AND THE SYNTHESIS OF HYDROXYCITRONELLAL**

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**ABSTRACT**

It has been carried out the isolation of citronellal, citronellol, geraniol from citronella oil by fractional distillation under reduced pressure and the synthesis of hydroxycitronellal. Hydration of the double bond of citronellal was carried out via oxymercuration-demercuration. Acetal formation was conducted to protect the aldehyde.

The synthesis of hydroxycitronellal has been performed through the reaction steps: 1) oxymercuration, 2) acetal formation as the step to protect aldehyde, 3) demercuration and 4) hydrolysis of acetal. The oxymercuration of citronellal has been done using mercuric acetate in the di-ethylether medium at room temperature for 1 hour. The oxymercuration product was then reacted with ethylene glycol under the catalysis of p-toluene sulfonic acid for 12 hours for the acetal formation. The demercuration was conducted using sodium borohydride under basic condition for 3 hours at room temperature. Hydrolysis of acetal has been carried out using sulfuric acid solution 10% v/v at 50°C for 45 minutes.

From fractional distillation of 500 g citronella oil at 35 mmHg, citronellal has been received at the amount of 10 g with the purity of 81.30% ( $b_p = 40^\circ\text{C}$ ), 210 g with the purity of 99.14% ( $b_p = 100-120^\circ\text{C}$ ) and an addition from distillation of citronella oil residue at the amount of 17 g with the purity of 95.79% (35 mmHg,  $b_y = 120^\circ\text{C}$ ). Rodhinol has been received from fractional distillation of citronella oil residue at 35 mmHg and 120-140°C at the amount of 135 g with the purity of 32.34% citronellol and 52.45% geraniol. Hydroxycitronellal was yielded with the total rendement of 65.94%.