

INTISARI

Tanaman Kunyit (*Curcuma domestica* Val.) merupakan tanaman rempah yang telah lama digunakan sebagai obat tradisional. Minyak atsiri yang terkandung dalam rimpang kunyit mempunyai banyak manfaat dalam bidang industri khususnya industri farmasi. Rimpang kunyit yang dihasilkan mempunyai kualitas yang berbeda pada setiap umur tanaman. Berdasarkan hal tersebut dilakukan penelitian untuk menemukan suatu alternatif parameter penanda saat panen, yaitu perbandingan kadar relatif sineol dan borneol dari berbagai umur tanaman.

Penelitian ini termasuk penelitian non eksperimental, karena penelitian dilakukan tanpa perlakuan dan manipulasi pada subyek penelitian. Penelitian dilakukan dengan mengisolasi dan menetapkan kadar minyak atsiri rimpang kunyit dari berbagai umur tanaman, yaitu umur 5 bulan, 6 bulan, 7 bulan, 8 bulan, dan 17 bulan. Selanjutnya minyak atsiri ditetapkan indeks biasnya, kemudian dianalisis dengan kromatografi gas dengan pembanding sineol dan borneol.

Dari hasil penelitian diperoleh kadar rata-rata minyak atsiri umur 5 bulan $1,23\% \text{ v/b} \pm 0,05$; umur 6 bulan $1,4\% \text{ v/b} \pm 0,1$; umur 7 bulan $1,52\% \text{ v/b} \pm 0,02$; umur 8 bulan $1,57\% \text{ v/b} \pm 0,05$; dan umur 17 bulan $1,6\% \text{ v/b} \pm 0,1$. Hasil analisis statistik ANAVA dan uji t terdapat perbedaan bermakna antar umur tanaman, yaitu pada umur 5 dan 6 bulan. Dari hasil penetapan indeks bias pada suhu 20°C diperoleh nilai indeks bias rata-rata umur 5 bulan 1.5080 ± 0.0005 , umur 6 bulan 1.5112 ± 0.0058 , umur 7 bulan 1.5085 ± 0.0005 , umur 8 bulan 1.4998 ± 0.0003 , dan umur 17 bulan 1.5125 ± 0.0005 . Hasil analisis statistik ANAVA dan uji t terdapat perbedaan bermakna antar umur tanaman.

Waktu retensi kromatogram pembanding sineol dengan waktu retensi berkisar antara 2.956 ± 0.509 menit dan borneol 7.592 ± 0.780 menit. Hasil profil kromatogram pada masing-masing umur dengan pembanding sineol dan borneol, diperoleh hasil pada umur 5 bulan sineol mempunyai waktu retensi 3.158 menit dengan luas area 9512 dan borneol mempunyai waktu retensi 7.285 menit dengan luas area 2450, umur 6 bulan sineol waktu retensi 2.897 menit dengan luas area 9134 dan borneol 7.317 menit dengan luas area 1323, umur 7 bulan sineol waktu retensi 3.18 menit dengan luas area 7976 dan borneol waktu retensi 7.933 menit dengan luas area 909, umur 8 bulan sineol waktu retensi 3.223 menit dengan luas area 7537, dan borneol waktu retensi 7.648 menit dengan luas area 421, dan umur 17 bulan sineol waktu retensi 2.662 menit dengan luas area 6566 dan borneol waktu retensi 7.182 menit dengan luas area 1055. Dengan melihat hasil kromatogram dan karakteristik perbandingan kadar relatif sineol dan borneol, dapat disimpulkan bahwa terdapat perbedaan perbandingan kadar relatif sineol dan borneol pada masing-masing umur tanaman dan berpeluang digunakan sebagai parameter kualitas rimpang kunyit dan parameter pemanenan kunyit. Selain sineol dan borneol, terdeteksi dua komponen lain yang belum diketahui yang mempunyai luas area yang besar.

ABSTRACT

Turmeric plant (*Curcuma domestica* Val.) is spice plant that is being used for a long time as traditional medicine material. Volatile oil has many benefit in Pharmaceutical Industry. The quality volatile oil produced is different plant to age. Base on that, the study performed in order to find out alternative parameter of harvesting of turmeric rhizome from any plant age with relative content comparison of *sineol* and *borneol* nature that contained in volatile oil.

This study classified to non-experimental study, since this study performed without treatment and manipulation on study subject. The study performed by isolation and determination of volatile oil content of turmeric spice from plant age, i.e. 5, 6, 7, 8, and 17 months. Furthermore, volatile oil measured for its refractive index, then analyzed using gas chromatography with *sineol* and *borneol* comparison.

From study result we obtained average volatile oil of 5 months age was 1,23 %v/b \pm 0,05 ; 6 months age was 1,4 %v/b \pm 01 ; 7 months age was 1,52%v/b \pm 0,02 ; 8 months age was 1,57%v/b \pm 0,05 ; and 17 months age was 1,6%v/b \pm 0,1. There was significant differences among plant ages of 5 and 6 months age according to t test and anava statistic analyze result. Refractive index measurement with temperature of 20°C resulted average bias index value for 5 months age was 1,5080 \pm 0,0005 ; 6 months age was 1,5112 \pm 0,0058 ; 7 months age was 1,5085 \pm 0,0005 ; 8 months age was 1,4998 \pm 0,0003 ; and 17 months age was 1,5085 \pm 0,005. There was no significant differences among plant ages according to t test and anava statistic analyze result.

Comparison chromatogram profile result of *sineol* and *borneol* with retention time ranged about 2,956 \pm 0,509 and *borneol* of 7,592 \pm 0,780. The result of chromatogram profile on each plant age using *sineol* and *borneol* comparison showed that 5 months age *sineol* has retention time of 3,158 minutes with area was 9512 and the *borneol* has retention time of 7,285 minutes with area was 2450; 6 months age *sineol* has retention time of 2,897 minutes with area was 9134 and the *borneol* has retention time of 7,317 minutes with area was 1323; 7 months age *sineol* has retention time of 3,18 minutes with area was 7976 and the *borneol* has retention time of 7,933 minutes with area was 909; 8 months age *sineol* has retention time of 3,223 minutes with area was 7537 and the *borneol* has retention time of 7,648 minutes with area was 421; and 17 months age *sineol* has retention time of 2,662minutes with area was 6566 and the *borneol* has retention time of 7,182 minutes with area was 1055. By discerning chromatogram result and characteristic of relative content comparison for *sineol* and *borneol*, we can conclude that relative content comparison of *sineol* and *borneol* was different on each plant age and can be used as quality parameter of turmeric and harvesting parameter of turmeric. Beside *sineol* and *borneol*, there were indicated unknown for two other components, which have a wide area.