

**PROFIL SENYAWA VOLATIL BAWANG PUTIH VARIETAS LUMBU
PUTIH (*Allium sativum L.*) PADA LOKASI BUDIDAYA YANG BERBEDA
MENGUNAKAN *HEADSPACE-GAS CHROMATOGRAPHY-MASS
SPECTROMETRY* (HS-GC-MS)**

INTISARI

Oleh:

Muhamad Farkhan Ardana

20/456866/TP/12774

Peningkatan konsumsi bawang putih di Indonesia telah menyebabkan lonjakan impor, karena produksi lokal belum mampu memenuhi kebutuhan. Meskipun varietas bawang putih lokal umumnya lebih kecil daripada yang diimpor, secara genetik, bawang putih lokal diketahui memiliki kandungan senyawa volatil yang lebih unggul. Penelitian ini berfokus pada varietas bawang putih lumbu putih, yang biasanya tumbuh di dataran rendah seperti Gunungkidul, D.I Yogyakarta, tetapi kali ini dibudidayakan di dataran tinggi Lombok Timur, Nusa Tenggara Barat. Tujuan penelitian adalah mengidentifikasi senyawa volatil pada bawang putih varietas lumbu putih dengan mempertimbangkan perbedaan lokasi budidaya.

Profiling senyawa volatil pada sampel bawang putih segar menggunakan metode *Headspace-Gas Chromatography-Mass Spectrometry* (HS-GC-MS) menghasilkan temuan bahwa profil senyawa volatil pada kedua sampel berbeda, jumlah senyawa volatil yang terdeteksi pada bawang putih di Gunungkidul lebih banyak daripada bawang putih di Lombok Timur. Bawang putih di Gunungkidul didominasi oleh tetradecanoic acid, 2-hydroxy-1,3-propanediyl ester (9,57%); rac-glycerol-1,3-dilaurate (8,43%); dodecanoic acid, 1,2,3-propanetriyl ester (8,13%); 2-(decanoyloxy)propane-1,3-diyl dioctanoate (8,12%); dan 1-dodecanoyl-3-myristoylglycerol (7,81%). Sedangkan bawang putih di Lombok Timur didominasi oleh 3-(octanoyloxy)propane-1,2-diyl bis(decanoate) (34,46%); dodecanoic acid, 1,2,3-propanetriyl ester (22,68%); dodecanoic acid, 2-[(1-oxodecyl)oxy]-1-[(1-oxodecyl)oxy]methyl]ethyl ester (21,95%); 2-(octanoyloxy)propane-1,3-diyl bis(decanoate) (11,41%); 1-dodecanoyl-3-myristoylglycerol (3,96%). Dengan demikian, lokasi budidaya secara signifikan mempengaruhi profil senyawa volatil pada bawang putih varietas lumbu putih.

Kata kunci: bawang putih, senyawa volatil, HS-GC-MS, lumbu putih, lokasi budidaya

**VOLATILE COMPOUND PROFILE OF GARLIC VARIETY LUMBU
PUTIH (*Allium Sativum* L.) UNDER VARYING CULTIVATION
LOCATIONS UTILIZING HEADSPACE-GAS CHROMATOGRAPHY-
MASS SPECTROMETRY (HS-GC-MS)**

ABSTRACT

By:

Muhamad Farkhan Ardana

20/456866/TP/12774

The escalating demand for garlic in Indonesia has resulted in increased imports due to insufficient local production. Local garlic varieties generally exhibit smaller sizes compared to imported ones. However, genetically, local garlic is regarded as superior in volatile compound content compared to imported garlic. This study focuses on the lumbu putih variety of garlic, traditionally cultivated in lowland areas such as Gunungkidul, D.I Yogyakarta, but examined under highland conditions in Lombok Timur, Nusa Tenggara Barat. The objective was to characterize volatile compounds in lumbu putih garlic concerning cultivation location.

Profiling of volatile compounds in fresh garlic samples was performed using Headspace-Gas Chromatography-Mass Spectrometry (HS-GC-MS). The findings revealed distinct volatile compound profiles between the two samples. Garlic from Gunungkidul exhibited a higher diversity of volatile compounds compared to garlic from Lombok Timur. Predominant compounds in Gunungkidul garlic included tetradecanoic acid, 2-hydroxy-1,3-propanediyl ester (9.57%); rac-glycerol-1,3-dilaurate (8.43%); dodecanoic acid, 1,2,3-propanetriyl ester (8.13%); 2-(decanoyloxy)propane-1,3-diyl dioctanoate (8.12%); and 1-dodecanoyl-3-myristoylglycerol (7.81%). Conversely, Lombok Timur garlic was characterized by 3-(octanoyloxy)propane-1,2-diyl bis(decanoate) (34.46%); dodecanoic acid, 1,2,3-propanetriyl ester (22.68%); dodecanoic acid, 2-[(1-oxodecyl)oxy]-1-[(1-oxodecyl)oxy]methyl]ethyl ester (21.95%); 2-(octanoyloxy)propane-1,3-diyl bis(decanoate) (11.41%); and 1-dodecanoyl-3-myristoylglycerol (3.96%). Hence, the cultivation location significantly influences the volatile compound composition of lumbu putih garlic.

Keywords: garlic, volatile compounds, HS-GC-MS, lumbu putih, cultivation location