

ABSTRACT

Aubrey Newata Alma. 24020121130108. Identifikasi Molekuler dan Analisis GC-MS Tanaman Kayu Putih dari Wilayah Kemusu Kab. Boyolali. Dibawah bimbingan Hermin Pancasakti Kusumaningrum dan Nurhayati.

*Cajuput is an aromatic plant that produces high-value essential oil. The 1,8-cineole compound found in cajuput oil is known for its various biological benefits. There are Cajuput plant in Boyolali that cultivated by Kelompok Usaha Tani (KTH) Wono Lestari II at Kemusu, Boyolali. They produces pure cajuput oil without any additives. Their cajuput oil is used for pharmaceutical products but the species and its chemical compound has not yet been identified. This study aimed to reveal the molecular identity of Boyolali cajuput using Internal Transcribed Spacer (ITS) as the DNA marker and Gas Chromatography Mass Spectrophotometry (GC-MS) to analyze its chemical compounds through the cajuput oil. These methods will conduct molecular identification through DNA isolation, PCR, sequencing, phylogenetic analysis, and chemical compound analysis by GC-MS testing. Molecular identification results classified Boyolali cajuput as *M. cajuputi*. Boyolali cajuput oil's chemical compounds are detected by GC-MS analysis and its contain 1,8-cineole (58.61%), hexadecanoic acid (23.88%), caryophyllene (6.31%), pyrrolo[3,2-c]pyridine (6.20%), and γ -terpinene (4.99%). Boyolali cajuput produces 1,8-cineole as at high concentration similar to *Melaleuca cajuputi*. In conclusion, Boyolali cajuput is identified as *Melaleuca cajuputi* with 1,8-cineole chemotype.*

Keywords: *Cajuput, Essential oil, Molecular identification, ITS, GC-MS*