

Title : Analysis of Biogenic Volatile Organic Compounds Emitted from Forests in Huai Hong Khrai Area

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ABSTRACT

Air pollution, including haze and fine particulate matter (PM), remains a serious issue today. This study aims to investigate the release of biogenic volatile organic compounds (BVOCs) into the atmosphere from the forest area of Huai Hong Khrai, Doi Saket District, Chiang Mai, over a continuous 24-hour period for 6 days. The analysis was conducted using thermal desorption unit-gas chromatography-mass spectrometry (TDU-GC-MS) to assess the formation of secondary organic aerosols (SOA) through chemical reactions between BVOCs and atmospheric oxidants. Air samples were collected during both daytime and nighttime periods. The results showed significant fluctuations in the concentrations of α -pinene, phenol, and d-Limonene during the daytime, while their concentrations tended to decrease after 6-7 PM during the nighttime. Factors influencing these fluctuations were not limited to temperature and humidity but also included the secondary metabolism processes of plants. Furthermore, the study found that α -pinene had the highest ozone formation potential (OFP) and secondary organic aerosol potential (SOAP), followed by d-Limonene and phenol. This research provides a foundation for further studies on air pollution and its environmental impacts in the future.