Chemical Compositions and Antioxidant Activity of Plai's Essential oil Grow between Rows in Plantation Forests

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Abstracts

This research was study on chemical compositions and antioxidant activity of essential oil from Plai that grew between rows in Pitsanuloke Silvic Cultural Research Station, Ngao Silvic Cultural Research Station, Lampang province, Intakin and Mae Sa Naam Silvic Cultural Research Station, Chiangmai province and Chiangrai Silvic Cultural Research Station. The result revealed that almost all of the oil had clear pale yellow color except the oil from Pitsanuloke, Intakin and Chiangrai Silvic Cultural Research Station at the age of 1 showing dark yellow color. Specific gravity at 20 ° C was 0.8912-0.9326. Maximum oils yield were 6.43 % and 6.19 % from 3 years old and 1 year old of Plai from Ngao Silvic Cultural Research Station. Major chemical composition in oil were Sabinene, Terpinene-4-ol and (E)-1-(3,4-dimethoxyphenyl) butadiene (DMPBD).

Antioxidant activities of Plai's essential oil were studied at various concentrations: 100 µg/ml, 200 µg/ml, 400 µg/ml, 600 µg/ml and 800 µg/ml reacted with 2,2-diphenyl-1-picrylhydrazyl radical (DPPH) and measured the absorbance at wavelength 515 nm. The study showed that Plai from Intakin gave more antioxidant activity than other Silvic Cultural Research station and the age of 3 gave the maximum antioxidant activity. These sets of data will support farmer to grow Plai as minor forest products in the plantation forest to gain more income for their life.

Keywords: Chemical composition, antioxidation activity, Plai, essential oil, plantation forest