Ekoloji 28(108): 57-62 (2019)

LETTER TO THE EDITOR

Molecules of Rosewood (*Dalbergia Fusca*) by Personnel Files Management

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Dalbergia fusca Pierre TG, PY-GC-MS, TDS-GC-MSP, FT-IR and GC-MS analysis of organic solvent extracts. Pyrolysis products were then analyzed by GC-MS. The results showed that the Dalbergia fusca extract contained a large amount of bioactive ingredients, including alkanes, phenols, alcohols, ethers and acids. The main constituents of Dalbergia fusca are healthy and abundant in the Dalbergia fusca extract; the main representatives of the active ingredient are alpha. Bisabolol, Vanillin, Nonanal, Homovanillic acid, Methylparaben, Phthalic anhydride, Benzoic acid, Octadecanoic acid, Benzoic acid, 4-hydroxy- and n-Hexadecanoic acid. Not only in bioenergy, biomedicine, cosmetics, skin care products, spices and other fields there is potential for the future. Dalbergia fusca the chemical composition of Pierre provides a scientific basis for the development and utilization of this plant.

I Introduction

Among the 33 species listed in the national standard of “mahogany”, Dalbergia fusca Pierre of Yunnan is native to China except for Dalbergia xanthoxylum of Hainan. Dalbergia fusca in Hainan is well-known and has been planted vigorously, but Dalbergia fusca seems to be still in a position of “keeping the daughters unaware”. Dalbergia fusca belongs to Papilio Dalbergia. Dalbergia fusca, also known as Banna ebony, because of its wood resembles a horn, also known as “horns wood”, because of its flowers and wood sour smell, also known as “sour tree”. Dalbergia fusca is the main origin of Xishuangbanna, Yunnan, Dalbergia fusca is the top grade mahogany, is China’s domestic wood treasures. Dalbergia fusca is listed in our national “mahogany” national standard black wood. Its heartwood dark brown, black with red, dense and dense material, water is sinking, smooth and oily, not Alice not crack, magnificent patterns. Dalbergia fusca is extremely hard, corrosion-resistant, termites-proof, insect-resistant, bump-proof and has good durability. Dalbergia fusca’s Heartwood is a premium material for high-end furniture, upscale crafts, upscale musical instruments and upscale interior decoration. Due to the good quality of Dalbergia fusca, ethnic minorities in the Dai ethnic group in southern Yunnan used Dalbergia fusca to make cattle flails, plows, crossbows, knives, farm implements and tools, and even used as piers and houses for hundreds of years of immortality. Vigorously Planting Dalbergia fusca can prepare follow-up resources for our country’s mahogany industry (Li 2014, Mao 2015).

Dalbergia fusca is also the host tree of excellent lac insect, which is another important industrial (mainly military

industry) raw material in our country. (Wang 2003) Vigorously planting Dalbergia fusca, not only for our country reserve important mahogany strategic resources, but also in the forest stocking lacrosse production shellac. Local farmers can also get huge income through stocking lac bug. Dalbergia fusca is a hardwood species with good ecological stability and is less prone to pests and fires. Vigorously planting Dalbergia fusca, you can get very good ecological benefits. Mixing Dalbergia fusca with conifer pure forest can greatly reduce the level of forest fire hazard and effectively prevent devastating pests and diseases and improve the ecological stability of the forest. Dalbergia fusca can mix with various tree species including Pinus sylvestris and Dalbergia fusca can transform the existing low-quality, low-forest, which can greatly improve the quality of the existing forest (Wang et al. 2013).

II Material and Methods

Three extracts were extracted in ethanol, ethanol/benzene (1:2) and ethanol/methanol (1:1) and named A1, A2 and A3, respectively. Three powders were named A1-1, A2-2 and A3-3. This log is named A0.

FT-IR Analysis*:* The FT-IR spectrophotometer (IR100) was used to detect the infrared spectra of the samples and KBr discs containing 1.00% finely ground samples were used.

TG Analysis: a thermogravimetric analyzer (TGA Q50 V20.8 Build 34). The nitrogen release rate is 60 ml/min. TG temperature program from 20°C, 5°C/min speed rose to 250°C.

GC-MS Analysis is the same as **References** Peng et al. 2017).

PY-GC-MS Analysis: The powder analysis was performed by PY-GC-MS (CDS5200-trace1310 ISQ). Carrier gas is high purity helium, pyrolysis temperature is 500°C, pyrolysis time is 15s, heating rate is 20°C/ms. Capillary column (30 m × 0.25 mm × 0.25 μm); TR-5MS column; pyrolysis product transfer line and injector temperature set at 300°C; parallel mode with split ratio of 1:60 and split flow rate of 50 mL/min. The temperature of the GC program was raised from 40°C for 2 minutes, raised to 120°C at a rate of 5°C/min and then raised to 200°C at a rate of 10°C/min for 15 minutes. The ion source (EI) temperature was 280°C and the scan range was 28 amu-500 amu

TD-GC-MS Analysis: The initial temperature was 30°C for 1 minute, 10°C/min to 100°C for 5 minutes, then 10°C/min to 200°C without retention. Transmission line temperature is 230ºC. The GC: silica capillary column is 30 mm × 0.25 mm × 0.25 μm and is incubated at 50°C, then warmed to 250°C at a rate of 8°C/min and then warmed to 300°C at a rate of 5°C/min. the split ratio was 20:1 and the carrier gas was high helium. MS: ionization mode EI, electron energy 70 ev, ion temperature 230°C, quadrupole temperature 150°C, mass range 30-600M/Z, computer search wiley7n.1. Qualitative.

III Results and Discussion

Analysis of FT-IR

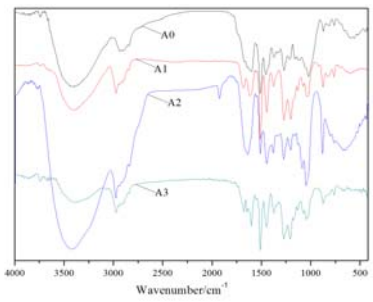

Fig. 1 FT-IR spectra of A0, A1, A2, and A3

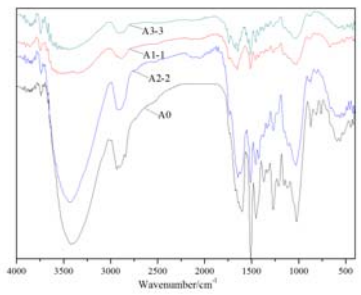

Fig. 2 FT-IR spectra of A0, A1-1, A2-2 and A3-3.

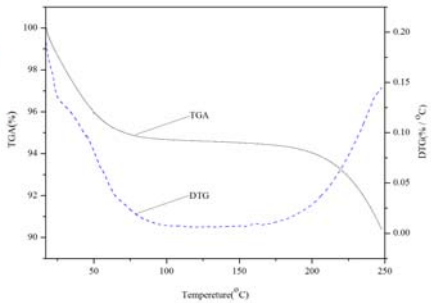

Fig. 3 TGA and DTG thermal curves

Fig. 1 shows the infrared contrast spectra of Dalbergia fusca and three extracts. The absorption peak in the infrared spectrum is mainly caused by the stretching vibration of CC and CO, and the CH bending vibration between 1370-660 cm^{-1}. The absorption peaks between 1480 and 1300 cm-1 are caused by the bending of CH_2 and CH_3, respectively The absorption peaks at 1450 cm-1 and 1370 cm^{-1} caused by vibrational absorption are caused by the stretching vibration of CH_2 and CH_3, respectively, and the absorption peak at 1745-1672 cm^{-1} next is due to C=O stretching Vibration generated by the absorption peak is stretching vibration of the saturated CH bond between 3000-2850 cm^{-1}, then the absorption peak in the infrared spectrum is 3400 cm-1 above free hydroxyl stretching vibration, and the wide peak is around 3400 cm^{-1} Intermolecular absorption peaks. (Yao et al. 2010, Huang et al. 2008). The absorption peaks of cellulose (2934 cm^{-1}), hemicellulose (1734 cm^{-1}) and lignin (1672 cm^{-1}, 1603 cm^{-1}, 1510 cm^{-1} and 872 cm^{-1}) can be seen in the chemical composition of Dalbergia fusca Slightly weakened, indicating partial hydrolysis (Wen et al. 2014, Hony et al. 2000). As can be seen from Fig. 1 and Fig. 2, the absorption peaks of the Dalbergia fusca extract are concentrated in the bands of 3800-3000 cm^{-1}, 3000-2840 cm^{-1} and 1740-866 cm^{-1}. The major chemical components are alcohols, phenols, ethers, ketones, fatty acids, hydrocarbons and aromatics (Balitsky et al. 2004).

Analysis of TGA and DTG

Shown in Fig. 3, TGA curve and DTG curve. $T_{5wt\%}$ and $T_{7wt\%}$ (for 1wt%, and 7wt% weight loss) (Mathi et al. 2016, Peng et al. 2017). $T_{5wt\%}$ and $T_{7wt\%}$ were 71°C and 223°C, respectively. TGA is divided into two stages, mainly in the evaporation of water at low temperatures, and the other stage is the high-temperature phase of coke combustion through aerobic combustion. Between 50-250ºC, *Dalbergia fusca* is only about 9% thermogravimetric, with less weight loss, indicating that the thermal stability of red sandalwood is better (Sasujit et al. 2017). In addition, the TGA and DTG test results showed that only a small amount of cellulose, hemicellulose and lignin pyrolysis was found out below 250°C, showing good thermal stability (Ge et al. 2017).

Analysis by GC-MS, TDS-GC-MS, PY-GC-MS

As shown in Fig. 4, the total ion chromatogram for the three extracts analyzed by GC-MS. The spectrum of each peak was calculated using computer and the standard wiley7n.1 spectra - using mass spectrometry to calculate the content of each component by spectral normalization to peak area. The results are shown in Fig.5 by TDS-GC-MS, and in Fig.6 by PY-GC-MS.

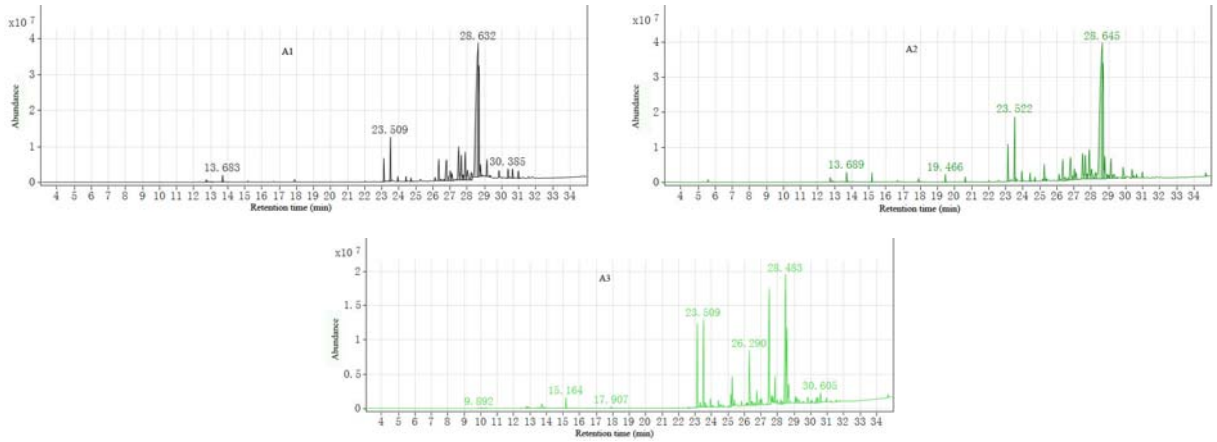

Fig. 4 Total ion chromatograms by GC-MS

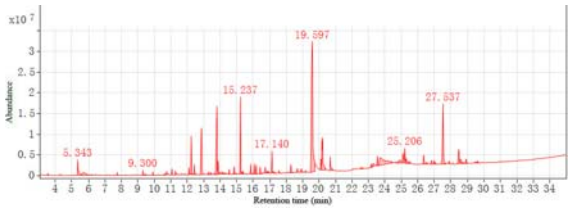

Fig. 5 Total ion chromatograms by TDS-GC-MS.

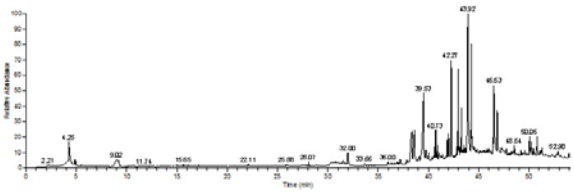

Fig. 6 Total ion chromatograms by PY-GC-MS.

Dalbergia fusca is a high-end and expensive furniture material. *Dalbergia fusca* products have certain human health functions. *Dalbergia fusca* was analyzed by GC-MS, TDS-GC-MS and PY-GC-MS techniques, and related compounds were obtained. And we obtained validated human health active ingredients by referring to the relevant literature and reports. Alpha-Bisabolol has anti-inflammatory, antispasmodic and anti-ulcer effects, though it also has enhanced skin defenses and reduced skin irritation (Mendes et al. 2017, Yang et al. 2017). Homovanillic acid (HVA) is the main metabolite of monoamine neurotransmitter dopamine, and is an important biochemical enzyme detection reagent. Parkinson's disease in urine HVA content can be used to assess the body of manganese Poisoning (NW van et al. 2015).

In addition, Vanillin is used as a standard for organic analysis to test proteins, important synthetic fragrances, and is widely used in consumer products. Moreover, Vanillin is used as an antimicrobial agent for preserving strawberry jam (Cerrutti et al. 2010), Vanillin (SKappachery et al. 2010) Nonanal Various bacterial and fungal pathogens have extensive antibacterial activity (Zhang et al. 2017). Methylparaben is used as a preservative fungicide, cosmetic and anti-fungal agent in the pharmaceutical industry for organic synthesis and as a preservative additive for food, fragrances, films, etc. (Jun et al. 2015). Phthalic anhydride is a bactericide sterilization Dan, insecticide imidacloprid, herbicide mefenpyr intermediates, imazapyr and sodium saccharin (Park et al. 2017). Benzoic acid is a disinfectant preservative with anti-bacterial properties and is also used as a preservative in food and pharmaceutical formulations (Etemadi et al. 2017, Sujatha et al. 2017). N-Hexadecanoic acid has an effect on autophagy and apoptosis of hepatoma HepG2 cells and is also anti-inflammatory (Liu et al. 2014). Acid, 4-hydroxy-widely used in food, cosmetics, pharmaceuticals preservatives, fungicides and fungicides and so on (Kricheldorf et al. 2015).

IV Conclusion

From the above test results, it can be concluded that the FTIR of *Dalbergia fusca* have different degrees of change. And *Dalbergia fusca* active ingredients with anti-bacterial, anti-tumor and insecticidal activity, including α-Bisabolol anti-inflammatory, antispasmodic, anti-ulcer effect.

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