AGARWOOD DISTILLATE: SAFE FOR ORAL CONSUMPTION

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Abstract

Agarwood or Gaharu by definition is the resin impregnated heartwood that produces unique aromatic scent when burnt. The agarwood resin and essential oil are highly-prized and sought for while less has been focused on the distillate (also known as hydrosol) which is the waste or by-product of resin distillation process. At present, agarwood distillate can be obtained commercially for oral consumption especially as tonic. However, scientific and safety data of the distillate is very scarce. This study is set to investigate the safety of agarwood distillate for oral consumption using standard testing for waste water. The Total Solids (TS), Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS) in the agarwood distillate were found to be 0.46 mg/L, 0.01 mg/L and 0.053 mg/L respectively. According to the National Water Quality Standards for Malaysia, Class I water should have less than 25 mg/L TSS. The results therefore confirm that agarwood distillate is safe for oral consumption. This pointed towards the potential use of agarwood distillate as a safe nutraceutical ingredient.

Keywords: Agarwood, Gaharu, Distillate, Hydrosol, Safety, Oral Consumption

4. Introduction

Agarwood or gaharu tree is of *Aquilaria* species from the *Thymelaeaceae* family (Chakrabarty, 1994). Agarwood is highly-prized for its resin and essential oil while less has been focused on the distillate (also known as hydrosol) which is the waste or by-product of resin distillation process. Plant distillates are known for their therapeutic values. It has been reported that 29 % of water from distillate originated from the plant material suggesting that plant distillate may demonstrate therapeutic properties possessed by the original plant (Tannous et al., 2004).

Plant distillates from rose, lemongrass, cedarwood, lavender and olive are popular in the market as antimicrobials and antiviral preparations as well as for cosmetic purposes. Agarwood distillate is also now commercially available for oral consumption especially as tonic. However, scientific and safety data of the distillate is

very scarce. It is therefore the interest of this study to investigate the safety of agarwood distillate for oral consumption based on standards for drinking water. The safety data would promote the use of agarwood distillate as nutraceuticals while also adding value to the agarwood industry in line with the waste to health and wealth concept.

5. Materials and Methods

Sample collection

Agarwood distillate was collected from Kayu Gaharu (M) Sdn. Bhd., Shah Alam, Selangor, Malaysia.

Determination of Total Solids (TS), Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS)

To prepare Total Solids (TS) from agarwood distillate, an aluminium dish was placed in a furnace for one hour at 550°C. The dish was then placed in the dessicator until it cooled down and weighed. Amount of 125 ml sample was placed onto the dish and left to evaporate to dryness in the oven at 130°C. The dish was weighed and the reading recorded.

To prepare Total Suspended Solids (TSS), the filter paper was first weighed. The vacuum pump was operated accordingly and an amount of 125 ml of agarwood distillate was poured into the filter. The filter paper was weighed again and placed in the oven for 2 hours and subsequently in the dessicator for one hour. The final weight of the filter paper was then recorded. The remaining samples which pass through the filter paper and collected in the conical flask are Total Dissolved Solids (TDS).

To prepare for Volatile Suspended Solid (VSS), the aluminium dish together with the filter paper from TSS experiment was weighed and then placed in the furnace at 550°C for 20-30 minutes. The sample was cooled and weighed again.

Contamination test

Amount of 200 µL of agarwood distillate was pipetted onto the LB agar plate and streaked using cotton bud. A strip of parafilm was used to seal the plate prior to incubation at 36°C for 24 hours. After incubation, observation was made to ascertain whether there was growth of bacteria colonies on the agar plate.

6. Results and Discussion

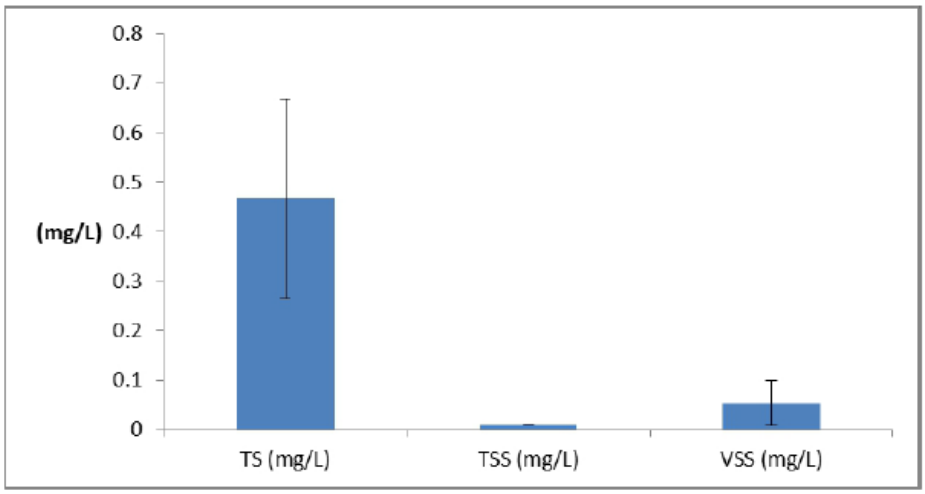

Figure 1 Total Solids (TS), Total Suspended Solids (TSS), and Volatile Suspended Solids (VSS) of Agarwood distillate. Results are expressed as n=3±s.d.

The Total Solids (TS), Total Suspended Solids (TSS) and Volatile Suspended Solids (VSS) in the agarwood distillate were found to be 0.46 mg/L, 0.01 mg/L and 0.053 mg/L respectively. The National Water Quality Standards for Malaysia sets the maximum limit of 25 mg/L TSS for Class I. The results therefore confirm that agarwood distillate is safe for oral consumption. Meanwhile, a clear agar plate was observed in the contamination test indicating that the agarwood distillate was not contaminated with any bacteria and notably safe for oral consumption.

7. Conclusions

Agarwood distillate is considered a waste or by-product of distillation process. Based on simple standard testing for waste water, agarwood distillate was found to be safe for oral consumption as they gave readings far below the standards for drinking water. This pointed towards the potential use of agarwood distillate as a safe nutraceutical ingredient.

References

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