



OuijaPac: A novel bio-formulation for enhanced extraction of Agarwood/essential Oil

Applications

Agarwood oil is arguably the costliest essential oil in the world. It is used in perfumery and traditional medicine. Although agarwood has a global market of Rs. 0.4 - 0.8 trillion, yet only 20% of global demand is met which makes it amongst the rarest bioresources. In India, only the Northeast region and mainly Assam produces agarwood. The conventional process of agarwood oil production is time-consuming and inefficient. The present innovation by Ouija Biosolutions introduces a scientifically developed technology of microbial fermentation that improves the efficiency and productivity of the process substantially.

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Categories of this invention

- ▶ Life Sciences (Biotechnology, Microbiology)
- ▶ Research tools (Fermentation, Distillation, GC-MS, FTIR)
- ▶ Bioprocess Engineering (Bioreactors)

Problem Addressed

Agarwood production follows age-old technology of soaking-distillation with sub-optimal yields. Before distillation the agarwood chips are soaked in water for up to 90 days depending on wood type. The distillation then proceeds for ~ 20 days. Usual yields of oil is approximately 150-160 g oil per 100 kg wood distilled. The oil is sold depending on the quality @ Rs 3-21 lakhs per kg oil.

In Assam alone 20,000-30,000 agarwood oil producers practice this conventional method. But due to non-availability of raw material and knowhow, production is confined to specific geographical pockets. OuijaPac improves the process efficiency and productivity of the conventional system with zero additional set up costs and no user training.

It can incentivize adoption of agarwood production in non-traditional pockets too.

Intellectual Property

1. Indian Patent No. 355518 (A method for production of fragrant compounds from resinous chips of *Aquilaria malaccensis* by fermentation) Applicant : Licensed to Ouija
2. Indian Patent No. 355515 (A method for production of fragrant compounds from *Aquilaria malaccensis* cell culture) Applicant : Licensed to Ouija
3. Indian Patent Appl. No. 202021025144 PCT Appln. No.: PCT/IN2021/050585 Fermentation assisted agarwood oil production method; Status - Filed Applicant – Ouija
4. Indian Design No. 202326561- 001 Fermenter design. Status - Filed; Applicant - Ouija

NBA Approval Granted

Publication

Chemometric analysis reveals links in the formation of fragrant bio-molecules during agarwood (*Aquilaria malaccensis*) and fungal interactions.

- Scientific Reports, 2017

Technology

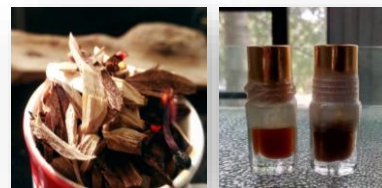
- A fermentation process to extract fragrant oil from resinous agarwood chips
- The process adopts microbial fermentation of resinous agarwood chips for a suitable duration
- Followed by distillation to collect the oil and then analyze it by GC-MS and FTIR profiling

Advantages

- Improves oil yield by 20% and reduces soaking time by 50% from conventional methods.
- Uses a microbial formulation therefore is a fully organic solution.
- Seamlessly integrated into the user's existing set-up.
- Reduced process duration means more rounds of production per year
- Can potentially increase income for the user by up to 150% due to gain in yield and savings in time.

Potential Value

- 1 Agarwood oil is marketed based on quality at Rs. 3-21 lakhs per kg in the international market.
- 2 Assuming sales @ Rs 5 lakhs per kg oil and considering 20% increase in yield, this technology generates additionally Rs. 1.0 lakh to the producer without even accounting for the savings in time.
- 3 The technology is scalable horizontally based on user's financial capability.



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