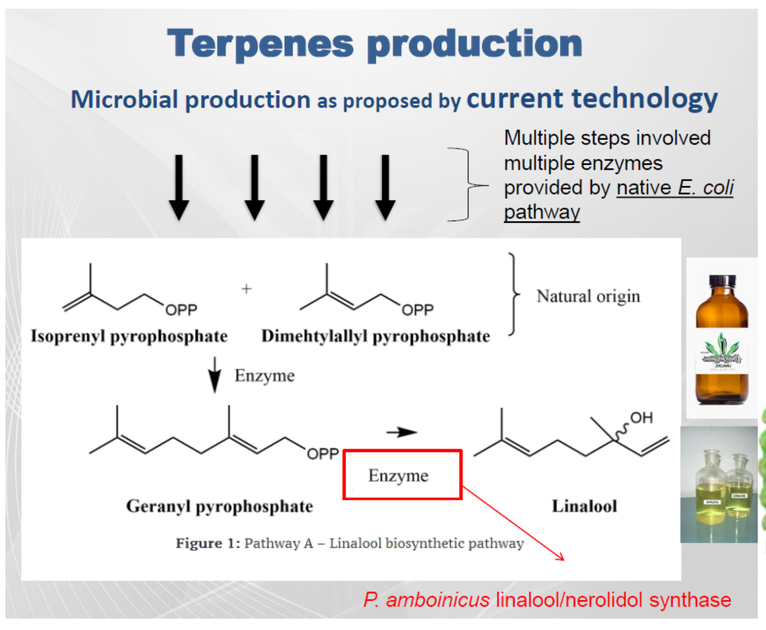
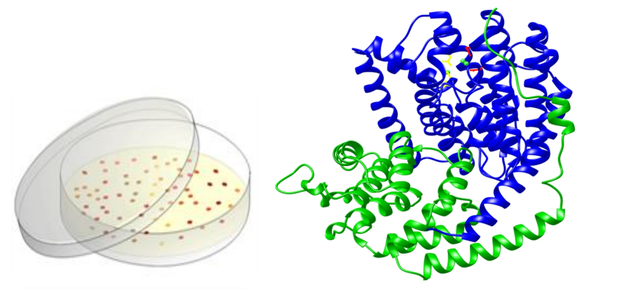
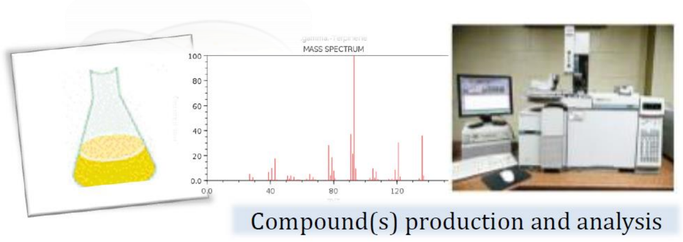
Recombinant terpene synthase from *Plectranthus amboinicus* for microbial production of linalool and nerolidol

PI2019000052







Compound(s) production and analysis

BRIEF TECHNOLOGY

Plectranthus amboinicus (Lamiaceae family) is a fleshy succulent herb with distinct oregano like flavour and odour traditionally used as folk medicine and culinary purpose. This plant is rich with terpenoids that contributes to its numerous pharmacological properties.

This invention is about microbial cell factory production of linalool and nerolidol compounds using engineered cells carrying *P. amboinicus* linalool/nerolidol synthase (Accession no: MK050501).

CURRENT ISSUES

Current methods of linalool and nerolidol production involve direct extraction from plants and chemical synthesis, both of which have drawbacks affecting production outputs.

Microbial production of linalool and nerolidol is a robust alternative for sustainable supply of these valuable compounds without relying on natural sources or the use of harsh chemical reagents.

Flavors and fragrances produced through biotechnological processes can be classified as "natural" under current legislation. Firmenich and Givaudan are examples of two companies that use biotechnology for production of flavours and fragrances.

INVENTIVENESS & NOVELTY

- Dual compounds production simultaneously from a single enzyme which could benefit production cost.
- Selective single compound production according to needs.

USEFULNESS & APPLICATION

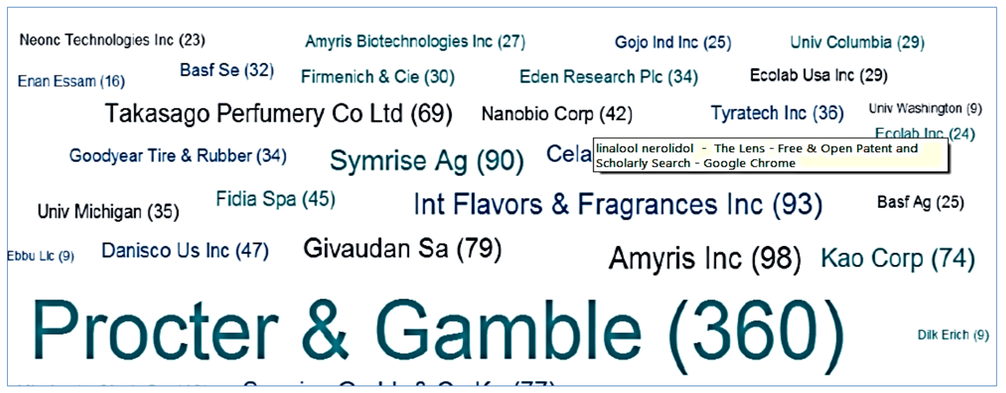
As flavour and fragrances in food, cosmetics, household items, bio-pesticides, pharmaceutical agents

ADVANTAGES OF THE INVENTION

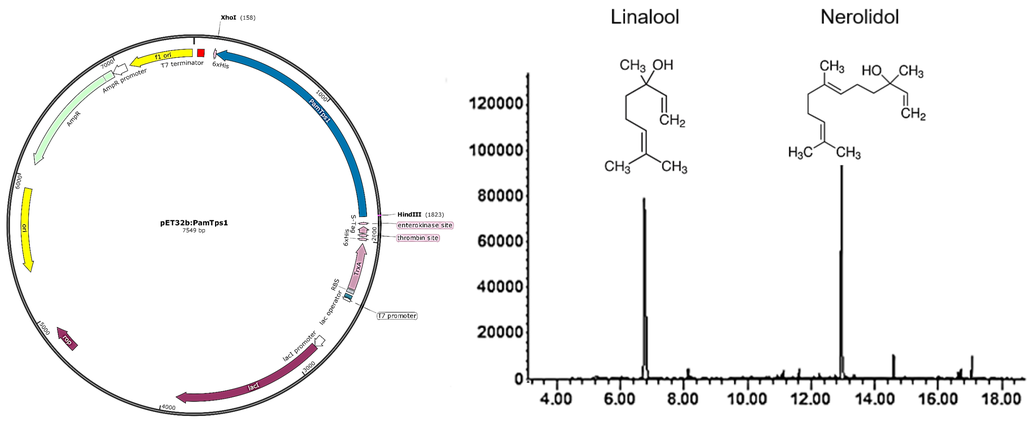
Advantages of microbial production of linalool and nerolidol

- Eco-friendly and natural
- Continuous supply – independent of climate & natural disasters
- Uniform quality product
- Production in tightly controlled condition
- Up-scaling potential

MARKET POTENTIAL



TRL : 4 - *Lab validation*



- Small scale lab bench production (13.6 mg/L and 10.6 mg/L linalool and nerolidol, respectively)
- Only need to optimize upscaling process for commercial-ready bioreactors platform

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