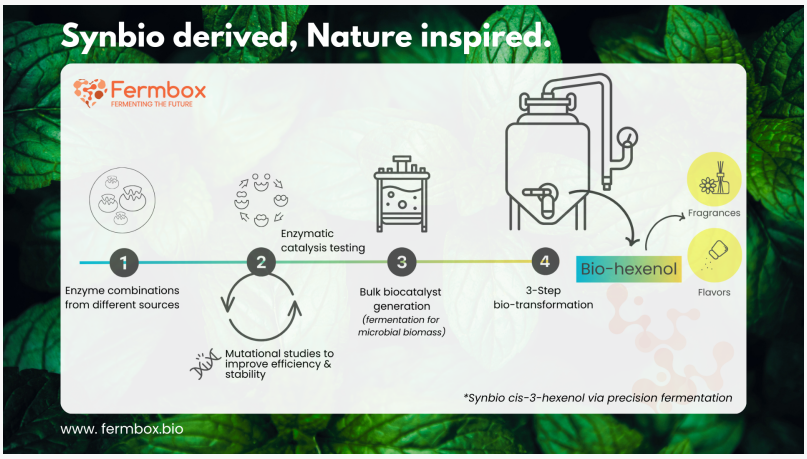
Fermbox Bio Introduces Bio-Hexenol: Transforming Sensory Experiences in the Flavor & Fragrance Industry Via Synbio

A sustainable alternative to cis-3-hexenol developed through synthetic biology and precision fermentation, with applications in flavor and fragrance industry.



The Fermbox process for producing Bio-hexenol involves a four-step workflow: enzyme combination from various sources, enzymatic catalysis testing with mutational studies for efficiency, bulk biocatalyst generation through fermentation, and a three-step bi

BENGALURU, KARNATAKA, INDIA, August 13, 2024 /EINPresswire.com/ -- Fermbox Bio, a synthetic biology research and manufacturing company, has announced the successful development of Bio-hexenol, a sustainable alternative to the traditional cis-3-hexenol. Utilizing their proprietary technology based on the Fermbox Synbio Product Platform, they have created Bio-hexenol through enzyme engineering and precision fermentation, ensuring high yields and minimal environmental impact. Cis-3-hexenol, known for its fresh, grassy aroma, is widely used in household goods, personal care products, food and cosmetics.

> We’re looking forward to sharing samples with our B2B partners soon and expanding our synbio-based product line in flavors and fragrances—creating more sustainable options for the industry.”
> *Subramani Ramachandrappa*

Subramani Ramachandrappa, Founder of Fermbox Bio, shared, "At Fermbox Bio, our development of an enzymatic route to produce cis-3-hexenol is more than just an innovation—it's a testament to our robust proprietary technology platform. This enzymatic process enables us to create a sustainable, scalable, and traceable manufacturing pathway that directly addresses supply risks and price fluctuations. For global cis-3-hexenol consumers, this means more reliable access to a crucial product.”

Cis-3-hexenol: The Fresh Green Grass Smell We Love:

Preeti Dharmagoudar, Co-founder of Fermbox Bio, explains, "Imagine capturing the fresh, green scent of a just-mowed lawn and bottling it. This essence comes from 'cis-3-hexenol'. Did you know that this fresh, grassy aroma is used in a wide range of products we use in our daily lives like perfumes, food and beverages, skin and hair care products, detergents, air fresheners and more."

Fermbox Bio highlights the production of Bio-hexenol, a sustainable fragrance ingredient derived from sugars through precision fermentation. The process emphasizes benefits such as consistent quality, high scalability, and a reliable supply chain.

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Cis-3-Hexenol, which gives that fresh green scent in fragrances and flavors, is usually made in one of two ways: chemical synthesis (>60%) or natural extraction from mint leaves. Unfortunately, both methods come with environmental downsides.

Chemical synthesis often involves petrochemicals and harsh substances, which can lead to air and water pollution. However, natural extraction avoids petrochemicals but depends on variables such as labor and seasonal variations. This makes the process challenging and requires significant agricultural resources, including high water usage.

We're approaching this differently. Our method is centered on sustainability, aiming to reduce reliance on petrochemicals and minimize the environmental impact compared to traditional methods. We're working towards a greener, more responsible way to produce cis-3-hexenol.

Fermbox Synbio Product Platform for Bio-hexenol Production:

The Fermbox Synbio Product Platform integrates strain and enzyme engineering to optimize metabolic pathways in microorganisms, enhancing the production of desired products. By leveraging advanced tools and technologies such as rDNA technology, genome editing, molecular biology, computational biology, pathway mapping, machine learning, and high-throughput screening, the platform provides a comprehensive solution. With the capability to work with multiple host microorganisms, including bacteria, yeast, and fungi, the platform offers a high degree of versatility — maximizing efficiency and broadens potential applications across various sectors, supporting the development of a sustainable product portfolio.

At Fermbox Bio, cis-3-hexenol is produced using a process that integrates enzyme engineering with synthetic biology. By focusing on creating more efficient enzymes, the company has developed a production method that offers a sustainable alternative to traditional cis-3-hexenol. Using synthetic biology techniques, microorganisms are modified to carry the genetic code for these specialized enzymes. Grown in bioreactors, these microorganisms act as bio-factories, transforming sugars into Bio-hexenol.

Bio-hexenol: The Shift to Sustainable Cis-3-hexenol Production:

As environmental regulations tighten and consumer demand for eco-friendly products rises, industries are rethinking their approach to sourcing ingredients. Fermbox Bio's Bio-hexenol is a step in that direction, leveraging cutting-edge synthetic biology to produce cis-3-hexenol using renewable feedstocks. This method not only reduces reliance on synthetic chemicals and finite resources but also offers a cleaner, more environmentally conscious alternative. The production process is tightly controlled, ensuring high purity, consistent quality, and full traceability—critical factors for maintaining a dependable supply chain.

The global flavors and fragrance market, valued at around $31 billion annually and growing steadily at 4.8%, has historically depended on synthetic production methods that involve harsh chemicals*. However, a shift is occurring as the industry embraces bio-based alternatives. Techniques such as fermentation and enzymatic processes provide safer, more sustainable ways to produce flavors and fragrances, aligning with the industry's increasing focus on sustainability.

About Fermbox Bio:

Fermbox Bio specializes in Synthetic Biology Research and Manufacturing, with operations in India, Thailand, and the USA. The company develops sustainable synbio products and solutions, leveraging microbial fermentation and synthetic biology. These innovations assist businesses in mitigating risks associated with supply chains that rely on harsh chemicals, forest reserves, or animal sources. Fermbox Bio's product portfolio spans a wide range of industries, including cosmeceuticals, flavors and fragrances, colors and dyes, energy, industry, and food, enabling these sectors to transition to sustainable, bio-based supply chains.

*Source: Custom Market Insights, Global Flavours and Fragrances Market Size Likely to Reach at a CAGR of 4.82% By 2033

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