Frequently Asked Questions (FAQ) on Yops™ and EvodiaBio

1. Understanding Terpenes

Q: What are terpenes?

A: Terpenes are naturally occurring compounds responsible for the distinct aromas and flavors in many plants, including hops, herbs, spices, and fruits. They play essential roles in plant ecology, such as attracting pollinators and repelling pests. In the context of beverages, terpenes contribute to fruity, floral, spicy, and pine-like aromas.

2. Yops™ Product Composition and Usage

Q: What are the ingredients in Yops™?

A: Yops™ comprises approximately 1% pure terpenes dissolved in a propylene glycol carrier for convenience in application. Propylene glycol is a common food additive that is Generally Recognized As Safe (GRAS) by the U.S. Food and Drug Administration (FDA) and is approved for food applications in the European Union (E-number E1520). As propylene glycol is used as a flavor carrier, there is no requirement to declared it separately on the beverage label.

Q: Why does EvodiaBio use propylene glycol as a carrier?

A: Propylene glycol is a safe and effective carrier for Yops™, especially in non-alcoholic beverage applications. While ethanol could serve as an alternative carrier, its use may affect the legal classification of non-alcoholic products and their suitability for halal and kosher certifications.

Q: What is the recommended dosage of Yops™?

A: Yops™ is typically added to beverages at a rate of 25-50 grams per hectoliter (g/hL). The maximum recommended dosage is 100 g/hL, based on European Union regulations for propylene glycol as a food additive. This translates to approximately 5.25-10.75 ounces per barrel (oz/BBL), with a maximum of 21.44 oz/BBL. Please consult local regulations if considering higher dosages.

3. Application and Flavor Profile

Q: Are Yops™ blends designed to replicate specific hop varieties?

A: Yops™ blends are crafted to achieve specific flavor profiles rather than to mimic particular hop varieties. While traditional hops offer a complex "bouquet" of aromas, Yops™ provides precisely defined aroma notes. It is best utilized as a flavor booster or for precise aroma adjustments and is recommended for use alongside, or as a partial replacement for, traditional hops.

Q: Can Yops™ fully replace the use of hop products?

A: It is estimated that hops contain over 4,000 aroma-active compounds that contribute to the complexity of the flavor profile. Yops™ is inspired by hop flavor profiles but is more focused in specific flavor directions. We suggest that producers keep a quantity of hop products to build the hoppy flavor foundation and use Yops™ to accentuate the desired top note profile with unprecedented control. If you wish to replace hop pellets or hop oil use, we suggest starting with 10-20% replacement and up to 50% to ensure your beverage carries the desired breadth of flavor profiles.

Q: Is Yops™ suitable for specific beer styles?

A: Yops™ is versatile and can enhance a wide range of beer styles. We provide a beer style guide as a starting point and to inspire further exploration.

Q: Can Yops™ be used in beverages other than beer?

A: Of course, Yops™ is suitable for various beverages beyond beer, including flavored waters, hop waters, seltzers, and other ready-to-drink products.

4. Environmental Sustainability

Q: How is Yops™ environmentally sustainable?

A: By leveraging yeast as a microfactory, the production process of Yops is highly efficient when compared to plant-based alternatives. An independent Life Cycle Analysis (LCA) conducted by the Danish Technological Institute (DTI) in 2024 determined that Yops™ has over 80% lower environmental impact in terms of energy use, water consumption, land use, and CO_2 emissions compared to equivalent doses of monoterpenes sourced from traditional aroma hops.

5. Production and Quality Considerations

Q: How should Yops™ be incorporated into the production process?

A: Yops™ is used similarly to hop oils or extracts used for flavor. It should be dosed near the final storage vessel to prevent terpene loss through interaction (scalping) with suspended solids or processing equipment. For optimal mixing, we recommend dosing Yops™ into transfer or recirculation flows, ensuring homogeneous distribution. Refer to the Yops™ Technical Guide for detailed instructions.

Q: Is Yops™ affected by filtration?

A: As most terpenes are lipophilic, they associate strongly with suspended solids (yeast, hop material, etc) and could be lost as these materials are removed from the beverage. Evodia recommends dosing Yops™ after solids separation.

Q: Does Yops™ affect the bitterness of the beverage?

A: No, Yops™ does not impart bitterness. Bitterness in hop products typically arises from isomerized alpha acids, which are absent in Yops™.

Q: Will Yops™ affect beer foam?

A: No, Yops™ has no effect on foam quality or stability. In a recent study by VLB Berlin, foam retention was shown to slightly improve when replacing 50% of dry hops with Yops™.

Q: How does Yops™ influence off-flavors?

A: Terpenes have complex sensory interactions, including both synergistic and antagonistic effects. Research indicates that terpenes can effectively mask off-flavors common in non-alcoholic beers, such as worty and oxidative notes. A sensory panel by VLB Berlin found that Yops™ has a masking effect on oxidation, contributes to a more favorable sensory experience, and enhances beer aroma and stability.

Q: Does Yops™ impact the perceived body or mouthfeel of beverages?

A: Many brewers who have tried Yops™ report a noticeable and positive impact on the perceived fullness and mouthfeel of the beverage.

6. Regulatory and Safety Information

Q: Is Yops™ approved by the U.S. Alcohol and Tobacco Tax and Trade Bureau (TTB)?

A: Yes, Yops™ has received approval from the TTB. Codes: C1 - 1643623; F2 - 1643629; F3 - 1643620; F4 - 1643621; FR1 - 1643626; H2 – 1643624.

Q: How should Yops™ be listed on ingredient labels?

A: Common labelling options for Yops™ include "Natural aroma," "Yeast aroma," or "Yeast-derived aroma." Requirements may vary based on local legislation.

Q: Does Yops™ always have to be reported on the ingredient list?

A: In the EU and UK: Yes. Exception: according to Regulation (EU) No 1169/2011, alcoholic beverages (except for wine) containing more than 1.2% by volume of alcohol are exempted from reporting a listing of ingredients on the label.

In the USA: Yes for non-alc. beverages including NAB. Ingredient labelling in alc. beer is not mandatory as per the TTB directives.

For other geographies, please consult local regulations.

Q: Is Yops™ organic?

A: Currently, Yops™ does not meet the criteria for organic certification and is therefore not suitable for organic products.

Q: What is the shelf life of Yops™?

A: Most Yops™ blends have a shelf life of 12 months from the date of production. After opening, it is recommended to use the product within one month for optimal quality. Flushing the headspace with inert gas can help extend freshness.

7. Company and Supply

Q: How can we be assured of Evodia's reliability as a supplier?

A: Evodia has secured several million euros in funding and is backed by key players in the venture capital and industry sectors. Our proprietary technology and in-house production capabilities enhance our independence from external factors such as supply chain disruptions.

Q: Are there other suppliers making products like Yops?

A: Evodia's patented peroxisome-based production technology is unique. It allows our yeast to produce terpenes at a commercial scale not previously seen. Sourcing terpenes from yeast fermentation brings a unique yeasty quality, not found in other flavors, that blends particularly well with beverages.

8. Cost and Production Efficiency

Q: What is the cost implication of using Yops™?

A: The cost of using Yops™ depends on the dosage but is generally comparable to or more favorable than traditional hops and hop oils, especially when taking factors like production efficiency, quality consistency, transportation, and storage into consideration.

Q: How can incorporating Yops™ reduce production costs?

A: Incorporating Yops™ can lead to several cost-saving benefits, including:

- **Increased Yield**: Traditional hop usage leads to a beer loss with vegetal matter removal of up to 30%. Since Yops™ contains no vegetal material, it can increase yield proportionally to the hop replacement rate, improving yield.
- **Process Efficiency**: As there is no vegetal matter in Yops™, this means that it will not contribute to hop creep; less vegetal matter means a faster, more streamlined production process.
- **Faster Product Development**: Yops™ allows for easy benchtop testing and late-stage flavor adjustments without requiring complex reformulation – just add a few drops in a glass of base beer to get a good idea of how it the end product will taste.

- **Improved Microbial Stability**: Unlike traditional hops, Yops™ does not introduce agricultural microbes into production, lowering contamination risks.

Q: Is it costly or complicated to integrate Yops™ into production?

A: Complexity and costs depend on the existing production setup. For example, brewers already using hop extracts or oils will not need to modify their process. Yops™ should be dosed into the beverage in a homogeneous manner, which can be achieved through various methods, such as manual dosing from a pre-mixed keg or more advanced automated blending systems. Refer to the Yops™ Technical Guide for further details.

9. Technical Stability and Compatibility

Q: Is Yops™ stable in beverages?

A: Yes. The terpenes in Yops™ are the same as those found in hop products, meaning their stability in beverages is comparable.

Q: How does Yops™ perform under pasteurization?

A: Terpenes are susceptible to oxidation. Beverages with high dissolved oxygen levels may experience some flavor degradation during pasteurization. This can be compensated by slightly increasing the initial Yops™ dosage before pasteurization.

Q: Does Yops™ influence the shelf life of beer?

A: Studies conducted by VLB Berlin indicate that Yops™ can extend the aromatic shelf life of beer by masking oxidation notes and enhancing hop aroma and flavor stability.

Q: Is Yops™ a thick or viscous product?

A: Yops™ is liquid and easy to handle in standard brewing environments. Propylene glycol has a viscosity of 43.43 cP at 25°C. For comparison, water has a viscosity of 1 cP, while vegetable oil ranges between 50-80 cP.

Q: Is Yops™ compatible with standard brewing equipment?

A: Yops™ consists primarily of propylene glycol and terpenes, both of which are compatible with most brewing equipment. However, terpenes are hydrophobic and may interact with certain soft polymers. It is advisable to verify material compatibility, particularly with polymer components.

Q: Does Yops™ leave residue in tanks?

A: No, Yops™ is completely soluble in beverages. When properly dosed with inline mixing, it leaves no residue in tanks or equipment.

10. Sensory Considerations and Troubleshooting

Q: Why does the Yops™ blend taste perfumey or soapy?

A: If Yops™ imparts an overly perfumed or soapy taste, it is likely being overdosed. We recommend reducing the concentration and allowing time for the flavor to integrate. If the issue persists, consider trying a different Yops™ blend better suited to your application.

Q: Why does Yops™ smell much stronger than it tastes?

A: Yops™ is highly aromatic in its concentrated form but becomes more balanced when properly incorporated into a beverage. For the most accurate sensory evaluation, we recommend dosing Yops™ into the beverage, mixing, and sealing it for at least 24 hours before tasting.

Q: Why does the Yops™ aroma seem to dissipate quickly during a benchtop tasting?

A: Yops™ dropped into a glass cannot be fully representative of how the same concentration will present in application. Due to the drop-and-mix process in a benchtop tasting, the headspace of the container might quickly become enriched with volatile aroma molecules. Such olfactory impact can be stronger, but more short-lived, than the impact of Yops™ properly blended with its base beverage, such as would result from a proper production process. If you wish to offset this effect, Evodia suggests dosing in a bulk container before distributing to tasters. Alternatively, you can try giving the tasting glass some time to rest after drop homogenization. Enjoy!

11. Regulatory Compliance and Safety

Q: Is there any contamination risk from Yops™?

A: Yops™ is produced under stringent quality control conditions. Its formulation includes a propylene glycol carrier, which has antimicrobial properties, and highly concentrated terpenes that naturally inhibit microbial survival. Yops™ is routinely tested for microbial activity to ensure safety.

Q: Should Yops™ dosage be considered a Critical Control Point (CCP)?

A: Since propylene glycol concentration in beverages is subject to regulatory limits, controlling Yops™ dosage can be considered a Critical Control Point (CCP) to ensure compliance with local food regulations.