



IMBIBE PRESENTS

# FUNCTIONAL INGREDIENTS

PART 2



Consumers want products that deliver flavor and fuel. Interest in functional ingredients is growing, but the taste that accompanies many of these ingredients might deter consumers if left untouched in a formulated product.

Taste drives repeat purchases more than any other attribute and this is where Imbibe can help make your product shine. Imbibe's masking, taste modulation, and other custom ingredient systems help deliver on the nutritional parameters, intended benefits, and most importantly, desired taste.








Consider these pages your functional ingredient field guide. Trust it as a resource to support your exploration, concept validation, and development. You are now able to dive deep into the need states that will fortify your portfolio.

Looking for additional insights, ingredient evaluation, or other support? Our R&D team, comprised of flavorists, taste modulation scientists, product developers, sensory, regulatory experts, and much more, can help you get to where you want to be.

# TABLE OF CONTENTS

## What are functional ingredients anyway?

Functional ingredients are thought to provide health benefits and often fortify products in which they are not inherently found. Technically, traditional dairy milk is functional, as most is enriched with Vitamin D, but mainstream consumers likely wouldn't group milk and Monster under the same functional umbrella. By adding functional ingredients to foods, consumers perceive more value from a product, whether it's great taste AND a feeling of mood stabilization, a shorter path to uninterrupted sleep, increased satiety, clearer skin, healthier nails, more energy, etc. Consumers are now able to target specific need states that are important to them through the food, beverages, and dietary supplements they choose in their day-to-day. We highlighted some of the most popular need states for you to consider as you evaluate your portfolio for opportunities.

-  **ALL ABOUT ENERGY**
-  **GETTING PHYGITAL**
-  **YOU ARE BEAUTIFUL**
-  **LET'S TALK ABOUT SEX**
-  **IT'S A GUT FEELING**
-  **REST & RELAXATION**
-  **KEEP ME WELL**



# ENERGY



Consumers are energy seekers. Energy/fatigue fighting was the top health concern that consumers wanted to target in 2022.<sup>1</sup>

## Ingredient Snapshot for General Energy



### Yaupon

Native to southeastern North America, yaupon is most commonly available as tea. As a natural source of caffeine, this plant is also abundant in theobromine and multiple polyphenols, which can reduce inflammation and protect against diseases. There are about 60mg of caffeine per cup of brewed yaupon. Whole Foods put yaupon on its 2023 trends list.

Moringa

Cascara

Green Coffee Extract

Guayusa

Matcha

Yerba Mate

Ginseng

Cordyceps

### Caffeine

Caffeine has been used for centuries to increase alertness, improve focus, and boost energy levels. Caffeine works by blocking adenosine receptors in the brain, which helps to reduce fatigue and improve cognitive performance. It also has a positive effect on mood and may help reduce the risk of certain conditions, such as diabetes and heart disease. Popular sources of natural caffeine are extracts from green coffee and green tea.

## Imbibe Flex

Imbibe scientists have worked with both natural and synthetic caffeine and have found that despite the insoluble nature of many types of caffeine, they have been able to increase solubility through spray dry technology.

*"Ingredients such as caffeine are often bitter, especially at efficacious levels. Many botanicals that contain caffeine (such as guarana, green or black tea) are often used in foods and beverages as a natural caffeine source. These botanicals, on top of being bitter can often contain additional off-notes that need to be masked. (i.e.: earthy notes, grassy or hay-like notes, etc.)."*

*The same bitterness happens with other natural stimulants such as panax ginseng, which may not contain caffeine, but has energizing properties." - Imbibe Scientist*

1. IFIC Report, 2022.



# GETTING "PHYGITAL"



**PHYSICAL + DIGITAL** **Phygital:** *adjective*; Energy + performance products for the physical body in the digital world.

The sports and performance drink category is forecasted to experience 31% growth from 2022-2026, bolstered by demand for functional food and drink.<sup>1</sup> Products that support both the physical and digital world and deliver benefits to succeed in both will shape the next generation of energy products.

*"From the bovine-like off-notes that come from whey protein to the earthy/astringent off-notes of plant-based proteins, protein does not have a one-size-fits-all answer. Imbibe's taste modulation tools support many market products in this category."* - Imbibe Scientist

## Ingredient Snapshot for Physical and Digital Energy

Animal and Plant-based Protein

Coconut Water

B-vitamins

Lutein

Creatine

BCAAs (Leucine, Valine, Isoleucine)

Essential Amino Acids

Beta Alanine

Tyrosine

Citicholine

Vitamin A

Spirulina

L-Histidine

MCT

Taurine

### L-Tyrosine

This amino acid derivative aids in mental alertness and mood regulation by modulating the fight, flight, or freeze response. By increasing focus and energy, one can counteract the stress on the body that is brought on by exercise. Many meats, fish, cheeses, and nuts contain high levels of L-Tyrosine.

Imbibe scientists know that L-Tyrosine can exacerbate irregular thyroid production, which also informs the dosage. Recommended daily dosages range between 500mg-2,000mg - but its important to note that at a higher rate, L-Tyrosine can produce undesirable off-notes.

### Zeaxanthin

Zeaxanthin is a vitamin that is drawn to the eyes and helps build yellow-colored pigment to shield them from various light sources such as blue light and sunlight. Known for protecting the eyes from unwanted free radicals that form from oxidation, this vitamin may also reduce inflammation, fatigue, improve muscular endurance and recovery time. Recommended daily dosages fall between 2mg-5mg.





# YOU ARE BEAUTIFUL



The global beauty drinks market is projected to grow at a CAGR of 8.33% from 2023-2027.<sup>1</sup> The interest in hydration also applies here, as many consumers seek dewy, glowing, and sufficiently hydrated skin.

## Ingredient Snapshot that Deliver Beauty from Within

Bamboo

Aloe

Schisandra

Goji Berry

Rosewater

Biotin

Fatty Acids (C15:0)

Papaya

### Collagen

Collagen is a protein that overhauls your skin by smoothing wrinkles, giving you a radiant, youthful complexion. Vital Proteins has cemented collagen in their portfolio, which includes multi-serve drink mixes, non-dairy powdered creamers, and stick pack collagen powders.

Although multifaceted, in this instance, collagen is positioned to support hair, skin, and nail growth. Collagen can often have a sweaty, sour, and offensive flavor profile, but Imbibe taste modulation tools are designed to mute the off-notes from this ingredient of interest.

### Hyaluronic Acid

Hyaluronic acid is a naturally occurring polysaccharide found in the human body, as well as in some foods and beverages. It has anti-inflammatory properties and is relied on to retain moisture in the skin.



Consumer demand for vegan products extends to vegan collagen. There are many products claiming to contain vegan collagen, but a discerning eye will recognize that they are not collagen but rather ingredients which help accelerate the production of collagen. The global vegan collagen market is expected to grow at an astounding rate with a CAGR of 25.2% through 2030<sup>2</sup>, signifying immense opportunity to offer beauty solutions to consumers interested in non-animal based products.



# LET'S TALK ABOUT SEX



When getting in the mood, the last thing consumers want is a bad taste in their mouth. Many of the ingredients that enhance sexual desire have a variety of off-notes to contend with (grassy, vegetal, bitter, astringent, etc.). Imbibe scientists design custom flavors, maskers, and sweeteners that support brand goals, no matter the featured ingredients, while also delivering the optimal consumer experience.

The global sexual wellness market is expected to increase by \$3.2b between 2020 and 2025, at a CAGR of 10.86%, which will be partially fueled by consumers' quest for love.<sup>1</sup> With over 320 million dating app users in 2021, we're confident that this need state will be deeply explored by Millennials and Gen Z.<sup>2</sup>

## Maca

Maca is a Peruvian herb that is thought to contribute to an increased libido and a decrease of sexual dysfunction. It is not GRAS but may be SA-GRAS or grandfathered in as an ODI (old dietary ingredient, prior to 1994). Daily dosages typically range from 150mg-300mg. The taste profile of this adaptogenic herb consists of caramel, nutty, and malt notes.



## Ingredient Snapshot for Sex and Romance

Ashwagandha

Fenugreek

Vitamin E

Pine Bark

Damiana

L-arginine

L-citrulline

Horny Goat Weed



1. Technavio, 2. Cloudwords.



# GUT FEELING



Digestive/gut health was a top health benefit consumers seek from food, beverages, and supplements in 2022 and 33% of consumers have taken a probiotic and a fiber/prebiotic supplement to try and improve their gut health.<sup>1</sup> Consumers are recognizing that if they can address issues in the gut, other ailments or health concerns may be ameliorated as a result.

## Apple Cider Vinegar



Consumers leverage the acetic acid in vinegar to help reduce insulin and blood sugar and increase satiety to foster weight loss. Although consumers have other ways to consume the recommended amount through tonics and shots, ACV-based prebiotic soda, Poppi, is a cult favorite among consumers.

Made from fermented apple juice, this elixir naturally contains prebiotics which are believed to reduce digestive issues and bloating.

## Postbiotics



Postbiotics are the waste left behind after the body digests probiotics and prebiotics. Healthy variants contain nutrients that hinder the growth of harmful bacteria and help healthy bacteria flourish.

Koso's Japanese Postbiotic beverage includes pre-, pro-, and postbiotics in a three-day cleanse. While still nascent, postbiotics are starting to show up in more products. Google searches for postbiotics have been trending up since 2019.

## Imbibe Flex

Apple Cider Vinegar has a strong, abrasive taste that is frequently paired with citrus and other fruit flavors. Sweeteners also help cut some of the tart, sharp flavor notes of the vinegar, but sugar may counteract the efficacy. ACV performs best in carbonated products, and works in still products as well. About 1 tbsp must be included to make a prebiotic claim.

## Ingredient Snapshot for Digestive Health

Prebiotics

Probiotics

Digestive Enzymes

Quercetin

Berberine

Star Anise

Ginger

Licorice Root



# REST & RELAXATION



56% of Americans reported that they feel very or somewhat stressed, with some focusing on improving sleep (41%), some turning to exercise as a stress reducer (40%), others seeking support for mental health (30%) and nearly a third making changes to diet and nutrition (30%).<sup>1</sup> Products that augment these remedies will continue to pique consumer interest.

## Ingredient Snapshot for R&R

CBD

Lavender

L-tryptophan

Lemon Balm

Melatonin

Chamomile

### L-Theanine

L-Theanine is an amino acid found in tea leaves and is proven to be effective for relaxation and refreshing mood and focus. It has also been studied for its ability to reduce the side effects associated with caffeine.

### Magnesium

Magnesium is a mineral that modulates activity of the body's stress-response system, and is suggested to reduce anxiety, ease stress, and reinforce healthy sleep by improving brain function. It clings to calming receptors, intercepts stimulating neurotransmitters, and regulates stress hormones to decrease negative symptoms. One watch out for magnesium is its metallic taste.



*"When considering using lemon balm as a functional ingredient, keep in mind that rosmarinic acid contributes to its low solubility. The primary compound in lemon balm is recommended as a liquid extract over powdered for optimal results." - Imbibe Scientist*





# KEEP ME WELL



25% of consumers seek immune health from foods and beverages, with the most interest coming from Millennials.<sup>1</sup> That interest has been realized as 27.3% of new supplement launches bore an immune support claim in 2022.<sup>2</sup> Many consumers look for multi-functional products, so we can expect to see immunity ingredients in products positioned to support other need states.

## Mushrooms

Functional mushrooms have emerged as an ingredient group of interest as there is a swath of benefits associated with these fungi, including immune and cognitive health support. They are increasingly found in coffee and coffee substitutes due to their slightly savory, brown, and earthy flavor profile.

## Elderberry

A powerful antioxidant, elderberry is thought to help boost the immune system, reduce inflammation, and protect against cold and flu viruses. It has been used to help relieve allergies, treat sinus infections, and ease sore throats. Elderberry is also rich in vitamins A, C, and E, as well as minerals like iron, potassium, and manganese.



## Ingredient Snapshot for Immunity

Ginger

Turmeric

Vitamin A

Vitamin C

Zinc

Black Seed Oil

Reishi

Maitake

Turkey Tail

Chaga

Beta Glucans





# IMBIBE'S INGREDIENTS WITH IMPACT™

We are here to solve your biggest textural, taste, and sweetness challenges that come with formulating functional products. How? With our flavors, taste modulation ingredients, sweeteners, and robust R&D services.

## IMBIBE FLAVORS

Imbibe Flavors are designed to help give formulations their characterization and differentiation. Flavors are typically custom designed for a formulation, though our stock flavor library is constantly growing, and we can send samples upon request.

**SWEET / SENSE®**

SweetSense® modulates the perception of sweetness, supports optimal organoleptic characteristics, and boosts the characterizing flavors to deliver a multi-dimensional experience.

**NON / SENSE®**

NonSense® maskers offset bitter, astringent, sulfuric, metallic, cardboard notes, and any unwanted taste attributes that occur commonly with assorted functional and plant-based ingredients.

**MAKE / SENSE™**

MakeSense™ gives dairy characteristics to alt-dairy products, adds indulgence, and builds back mouthfeel.

**PRE / SENSE™**

Pre/Sense™ is a family of high-performing, non-nutritive, and clean-tasting natural sweeteners.

## WORK WITH US

### Develop With Our Team

Let us do the heavy lifting. Inquire within to see if we can support your next benchtop development project and let you and your team breathe. If you're further along, send us your base or recipe and let us apply our flavor, taste modulators or sweeteners to bring your product across the finish line.

### Develop With Our Tools

Request Flavor, Taste Modulators (The Senses™), maskers, or Pre/Sense™ Stevia samples for your team.

Request Flavor, Taste Modulators, Maskers (The Senses™) or Pre/Sense™ Sweetener samples for your team. [marketing@imbibeinc.com](mailto:marketing@imbibeinc.com)