

COMET

ARRABINA[®] & COFFEE

CASE STUDY



Coffee & Arrabina[®]... The Perfect Blend

More than 60% of Americans start their day with a cup of coffee, and an additional 10% drink coffee every week, according to a survey commissioned by the National Coffee Association (NCA). Beyond looking for delicious flavor and caffeine, today's consumers are increasingly searching for options with added health benefits.

Fortunately for beverage manufacturers, coffee serves as an excellent vehicle for functional ingredients, allowing consumers to seamlessly integrate wellness options into their existing morning routines. To tap into this trend and differentiate their products in the competitive coffee space, beverage manufacturers should pay close attention to emerging functional ingredients including prebiotic dietary fiber.

80%

of US consumers are interested in functional beverages.*

50%

of consumers consume or want to try products that support digestion & gut health.**

86%

of US consumers have either tried or would be willing to try high-fiber food/drinks for digestive relief.***

25%

of supplement consumers prefer a beverage delivery format.****

*SPINS Market Data 2022

**Mintel, Functional Ingredients in Food and Drink - US, February 2023

***Lightspeed/Mintel; KuRunData/Mintel

****2021 ITC Insights Consumers Supplement User Survey

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Arrabina[®]'s Remarkable Versatility Works In Any Coffee Format

Whether added to loose grounds, convenient K-Cups or directly to ready-to-drink beverages, Arrabina offers a seamless solution for coffee enthusiasts to integrate a gut health boost into their morning routines.

Ground Coffee



Arrabina is a fine powder that blends easily into ground coffee with no settling and passes through standard filters for claims integrity.

K-Cups

Arrabina is a low dose prebiotic dietary fiber which allows inclusion in K-Cups without dilution in flavor with >90% confirmed pass-through for claims integrity.



Ready-to-Drink

Arrabina is fully soluble and heat stable with seamless color and flavor alignment in ready-to-drink beverages.



Arrabina[®] Fits Every Formulation Need:

Good Source Of Fiber

Heat & pH resistant

Low viscosity & neutral mouthfeel

Low serving size for prebiotic claim of less than one gram*

Gentle on the stomach even at 15 grams**

*Damen, et.al., 2012; Chen, et.al., 2021; Walton et al. 2012; Windey et al., 2015; François et al., 2014; Maki et al., 2012; Collins et al., 2023

**Oliver Chen, Traci Blonquist, Kristen Sanoshy, Kathleen Kelley, Eunice Mah, The Effect of Arabinoxylan on Gastrointestinal Tolerance in Generally Healthy Adults: A Randomized, Placebo-Controlled, Crossover Study, >, Volume 5, Issue Supplement_2, June 2021, Page 304.



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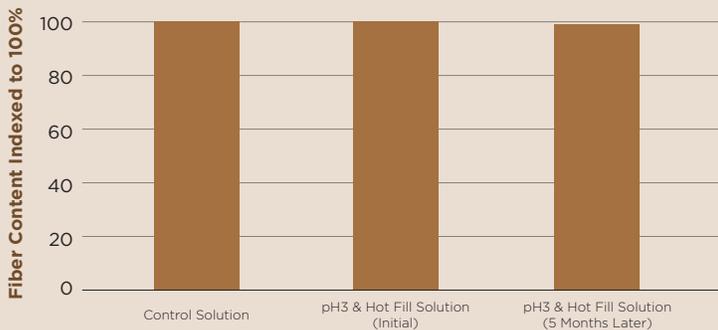
The Arrabina® Advantage

Testing has revealed that Arrabina prebiotic dietary fiber easily integrates into coffee production processes, ensuring its viability. The testing conditions replicated the most common processing conditions intrinsic to functional beverage manufacturing, affirming its compatibility with the industry's standards. In addition, Arrabina's unique structure allows it to be gentle on the stomach.

Hot Fill Conditions

Results show that Arrabina is stable in hot fill conditions and over time with less than -0.5% degradation over a five-month period.

Arrabina® Stability Over Time

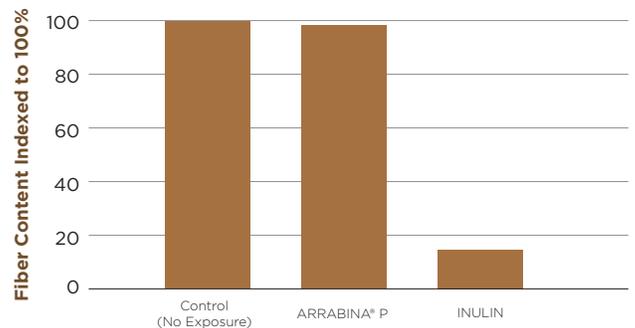


* 2% SOLUTIONS OF FIBER TESTED IN LAB CONDITIONS AND RESIDUAL SUGAR AND DEGRADATION PRODUCTS ANALYZED OVER TIME. FIBER CONTENTS IMPUTED FROM RESIDUALS ANALYSIS.

Retort Conditions

Results show that Arrabina is heat tolerant up to 275 degrees Fahrenheit, typical of UHT or alternative heat treatment processes commonly used to create ready-to-drink beverages.

Fibers Were Exposed to pH 4 & 275°F for 40 Minutes*

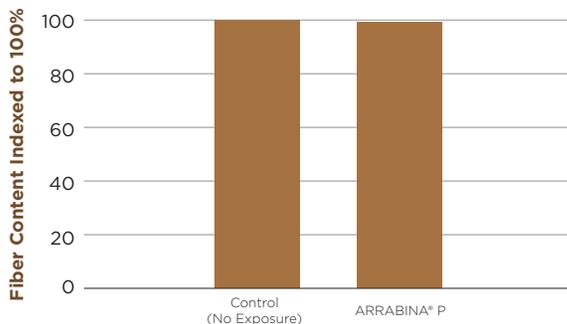


*SOLUTION OF 5% OF EACH FIBER TESTED FOR DEGRADATION PRODUCTS INCLUDING TOTAL MONOSACCHARIDES AND REMAINING FIBER CONTENT IMPUTED FROM THE ANALYSIS.

Extremely Acidic Conditions

Testing shows that Arrabina is stable in pH conditions of 2, which allows it to be used in extremely acidic beverage formulations.

Fibers Were Exposed to pH 2 & 194°F for 55 Minutes*



*SOLUTION OF 5% OF EACH FIBER TESTED FOR DEGRADATION PRODUCTS INCLUDING TOTAL MONOSACCHARIDES AND REMAINING FIBER CONTENT IMPUTED FROM THE ANALYSIS.

Addressing Tolerability Concerns

Many dietary fibers are not well tolerated in the stomach and can cause bloating or GI distress, especially when multiple servings are consumed.

Arrabina is gentle on the stomach. Clinical trial results prove that even when 15 grams are consumed, there are no negative GI symptoms including bloating and gut discomfort. Though multiple servings can be consumed at a time, Arrabina is a low-dose prebiotic dietary fiber with only around 3.6 grams needed to promote the growth of bifidobacteria.



Arrabina® P has naturally occurring polyphenols and complements the flavor of coffee without diluting taste or color.

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