

Green Banana - Resistant starch

Presentation by

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Photo by Phil Bendle

Resistant starch is defined as the total amount of starch and the products of starch degradation that resists digestion in the small intestine of healthy people

Starches that resist small intestinal breakdown are fermented by the resident bacteria in the large intestine, producing a variety of end products including short chain fatty acids that in turn provide a range of physiological benefits

Resistant starch is one of the best substrates for the production of butyrate – producing levels twice that of wheat fiber and four times that of pectin

To qualify as a prebiotic, a food ingredient must be shown to: escape digestion and absorption in the small intestine, where reaching the large bowel it changes the composition or activity of the microbiota selectively, which results in demonstrable health benefits for the consumer

- Unripe bananas contain mostly starch, which makes up 70–80% of their dry weight
- While green bananas provide the highest amount of resistant starch with 12.75g per standard banana (approximately 150g), the resistant starch drops by 85% to 1.84g when the banana is ripe

The banana fruits harvested at 105 days were recommended for preparing the unripe banana flour as it contained the highest level of Resistant Starch, carotenoids and had strong antioxidant activity.

- The preparation of unripe banana flour and applying it in the preparation of functional food such as rice noodle which is high in resistant starch, is promising and this product is likely beneficial for human health.
- The resistant starch in green banana is classified as dietary fiber by the FDA

Resistant Starch - Basics

- Resistant Starch
- Digestibility of resistant starch
- Frequently asked questions
- Improving Human Health
- Colonic Health

Green Banana Flour Applications

- Functional ingredient for special-purpose foods
- Starch nano-particles as vehicles for curcumin
- Non-digestible food ingredient
- Health Benefits: Whole Green Banana Flour
- Health benefits, measurement and dietary intakes
- Green banana_ new alternative for gluten-free products

Processing

Contents of the Data Base

- Resistant Starch rich Powders Preparation
- Resistant Starch- Chemistry and Nutritional properties
- Contents depend upon Harvesting
- Farmer and Entrepreneur
- Resistant Starch Preparation Methods
- Characterization of banana starch and its resistant starch improvement
- Instant Noodles
- Production of Green Banana Flour

Patents

Contents of the Data Base

- Resistant Starch
- Resistant Starch
Compositions
- Process for
preparing
Resistant Starch

Sources of Resistant Starch

Contents of the Data Base

- Banana resistant starch from four cultivars
- Green Banana Resistant Starch Multi-Fibre - regulation

Technology

- Starch and amylase variability in banana cultivars
- Chemical compositions and Resistant Starch content in starch foods

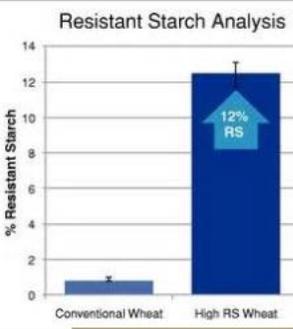
Company Profiles

- Manufacturer - certified product
- Manufacturer
- Research Institute
- Starch Specialist
- Manufacturer
- Supplier
- Distributor

Resistant Starch Update

Long term commercial opportunity

- Improved general health (human & animal)
 - Bowel health
 - Reduces constipation and removes cytotoxic material
 - Potential reduction in the risk of bowel cancer
 - Treatment of ulcerative colitis
 - Reduced glucose and insulin response
 - Type II Diabetes
 - Prebiotic and probiotic benefits
 - Promotes fermentation to increase 'good' bacteria in the gut and increase production of SCFA



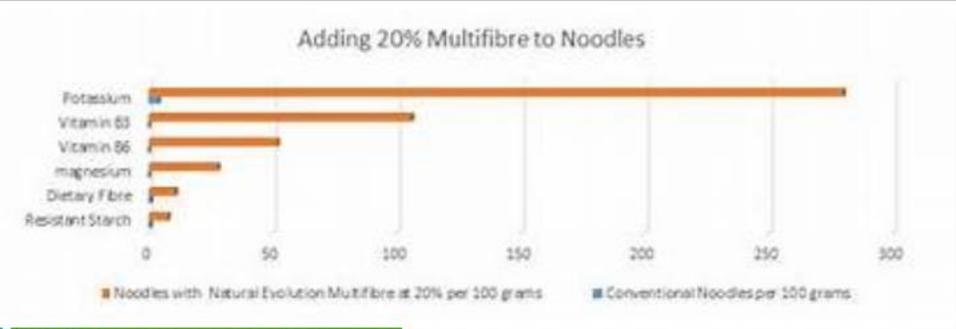
3 Levels of Resistant Starch Benefits

What is Resistant Starch? Resistant Starch is starch that resists digestion. American adults already get about 5 grams/day in foods.

The benefits of Resistant Starch

- Low < 10 grams**: Healthy eating & general wellness
- Moderate 10 - 15 grams**: Regularity, safety & fat burning
- High 20 - 35 grams**: Insulin sensitivity, anti-inflammation, intestinal health & other metabolism benefits

Supplementing with resistant starch has been shown to improve insulin sensitivity within hours.



MGP Legacy and Leadership

- Over six decades of industry experience
- Innovator of plant protein and starch development
- Market leader:
 - Largest U.S. producer of wheat proteins and wheat starches
 - Among leading U.S. producers of natural food grade industrial alcohol
 - One of three largest U.S. producers of grain neutral spirits for beverage applications
 - Among top one-third of U.S. producers of fuel grade alcohol
- Positioned for emerging market trends

GRAND VIEW RESEARCH

Report for sample of this report: <https://www.grandviewresearch.com/industry-analysis/Resistant-Starch-Product-Global-Industry-Analysis>

Grand View Research has segmented the global resistant starch market on the basis of product, application and region.

Global Modified Starch Product Outlook (Volume, Sales, Revenue, CAGR 2019-2025)

- Wheat
- Maize
- Other

Global Modified Starch Application Outlook (Volume, Sales, Revenue, CAGR 2019-2025)

- Food & Beverage
- Industrial
- Pharmaceutical
- Other

Global Modified Starch Regional Outlook (Volume, Sales, Revenue, CAGR 2019-2025)

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East & Africa



THE RESISTANT STARCH BIBLE

Resistant Starch - Get Health, Fibre, Get Balance

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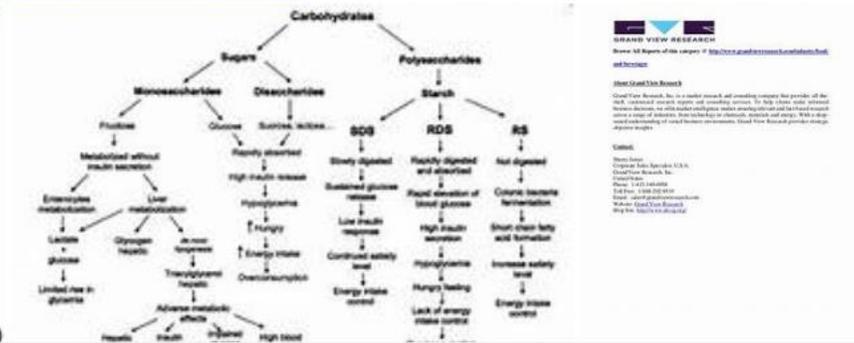
Gaps: wheat quality improvement

- Wheat allergy and intolerance to gluten
 - Complex problem: Involves down-regulating coeliac-toxic proteins (gliadins); Impact on gluten functionality (bread)
- Increase fibre (resistant starch)
 - Complex problem: Altering starch biosynthesis pathways may reduce grain size, flour yield



レジスタントスターチ サプリメント

内容量150g(15日~30日分)



QUESTIONS?

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