



About Ambrotose® Products

Technical Information for You and Your Doctor

What Are Mannatech's Ambrotose Products?

Mannatech's Ambrotose products are the world's first glyconutrient dietary supplements—proprietary blends of plant saccharides that support cellular communication and immune, cognitive and gastrointestinal health.* More than 50 patents have been issued for technology related to Ambrotose products. Two formulations are available: Ambrotose complex and Advanced Ambrotose® products. Based on the same core technology, Advanced Ambrotose delivers an improved blend of saccharides at a lower cost per serving. These products can be purchased as capsules or bulk powders that can be added to water or juices. Ambrotose complex capsules and Advanced Ambrotose capsules and powder also contain a small amount of β -carotene. Product monosaccharide constituents include mannose, galactose, arabinose, glucose, galacturonic acid, rhamnose, xylose, fructose, fucose and glucosamine.



What Science Guided Their Development?

Aloe vera has been a popular medicinal plant for centuries. In the 1980s, Bill McAnalley, a PhD pharmacologist, was fascinated by the potent health benefits of fresh aloe vera gel. His research led to the discovery of a key component of this gel, a mannose-based polysaccharide. This discovery, that a plant constituent typically dismissed as "just fiber" could provide such health benefits, contributed to a paradigm shift in nutrition. Dr. McAnalley then developed a powdered



form of this polysaccharide that preserved the activity found in fresh gel. In 1996, Mannatech capitalized on Dr. McAnalley's insights into glyconutrient technologies and launched Ambrotose complex.

What Studies Have Been Published?†

Pre-clinical studies suggest that Ambrotose powders exert positive effects on the immune system,¹ brain² and gastrointestinal tract.^{3*} Prebiotic effects, assessed using a state-of-the-art simulation of the human GI tract, indicate that Ambrotose products are bifidogenic and may enhance species belonging to Bacteroidetes, a phylum recently associated with body-weight management.^{3*}

In an eight-week, open-label human clinical trial of healthy adults investigating the ability of Advanced Ambrotose powder to impact cellular communication, product intake affected serum glycosylation profiles, significantly increasing levels of disialylated N-linked glycans in human plasma.^{4*} Four independent placebo-controlled trials of more than 150 healthy adults indicate that intake of Ambrotose powder can also support cognitive health. In three trials, a single serving of Ambrotose powder 1) improved subjects' visual discrimination and working memory;⁵ 2) significantly enhanced brain wave frequencies associated with attention or alertness and enhanced brain wave potentials

associated with language processing;⁶ and 3) significantly improved memory and cognitive function.^{7*} In a randomized, double-blind, 12-week placebo-controlled trial, Ambrotose complex significantly improved memory tension and mood.^{8*} Subjects who took Ambrotose powder also reported improved sleep, and increased calmness, concentration and clear-headedness.^{9*} Researchers in Mannatech's laboratory and at academic institutions worldwide are continuing to explore the beneficial health effects of Ambrotose products.

What Safety Information Is Available?

Ingredients in these products have a long history of safe use by humans. Established in 1997, Mannatech's Product Safety Monitoring Program continues to document the safety of daily Ambrotose product consumption. To date, more than 21 million units of Ambrotose products have been sold. The acute oral LD₅₀ of both product powders is greater than 5,000 mg/kg body weight in female rats. This is equivalent to hundreds of times the recommended daily amount for adults.

	Ambrotose capsules	Ambrotose powder	Advanced Ambrotose capsules	Advanced Ambrotose powder
Quality				
Suitable for vegetarians	✓		✓	✓
Naturally gluten-free	✓	✓	✓	✓
NSF-Certified 	✓	✓	✓	✓
Product Key Ingredients				
Aloe vera gel powder	✓	✓	✓	✓
Arabinogalactan	✓	✓	✓	✓
Gum ghatti	✓	✓	✓	✓
Gum tragacanth	✓	✓	✓	✓
<i>U. pinnatifida</i> fucoidans			✓	✓
β -carotene	✓		✓	✓

REFERENCES

- Ramberg JE, Nelson ED, Sinnott RA. Immunomodulatory dietary polysaccharides: a systematic review of the literature. *Nutr J* 2010;9:1-60.
- Nelson EN, Ramberg JE, Sinnott RA. (2012) Brain-specific effects of Ambrotose® products: a preliminary animal study to investigate cognitive benefits found in humans. Poster Presentation at the 10th Jenner Glycobiology and Medicine Symposium, The Hague, the Netherlands, March 31-April 3.
- Marzorati M, Verhelst A, Luta G et al. *In vitro* modulation of the human gastrointestinal microbial community by plant-derived polysaccharide-rich dietary supplements. *Int J Food Microbiol* 2010;139:168-76.
- Alavi A, Fraser W, Tarelli E, Bland M, Axford J. An open-label dosing study to evaluate the safety and effects of a dietary plant derived polysaccharide supplement on the N-glycosylation status of serum glycoproteins in healthy subjects. *Eur J Clin Nutr* 2011;1-9.
- Stancil AN, Hicks LH. Glyconutrients and perception, cognition, and memory. *Perceptual Mot Skills* 2009;10:259-70.
- Wang C, Szabo JS, Dykman RA. Effects of a carbohydrate supplement upon resting brain activity. *Integr Physiol Behav Sci* 2004;39:126-38.
- Best T, Howe P, Bryan J. Acute effects of a dietary non-starch polysaccharide supplement on cognitive performance in healthy middle-aged adults. *Nutr Neurosci* 2014; 1-11.
- Best T, Kemps E, Bryan J. Saccharide effects on cognition and well-being in middle-aged adults: A randomized controlled trial. *Dev Neuropsych* 2010;35:66-80.
- Best T, Kemps E, Bryan J. Perceived changes in well-being following polysaccharide intake in middle-aged adults. *Applied Res Qual Life* 2012; 7(2):163-182.

†These studies were completely or partially funded by Mannatech, Incorporated.

***These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.**

NSF-Certified according to the NSF/ANSI 173 Dietary Supplement Standard—the only American National Standard for dietary supplements. This certification ensures that this product contains only the ingredients indicated on the label and is free of impurities, and that current Good Manufacturing Practices (cGMPs) were used in the manufacturing facility.