

The Hidden Power of Arrowroot: From Stomach Soother to Smart Food

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In the age of “superfoods,” where quinoa, chia seeds, and kale dominate health headlines, it is easy to overlook lesser-known traditional crops. Yet, hidden in the soils of tropical regions is a root that has sustained generations with its healing, soothing, and nourishing qualities. This root is arrowroot (*Maranta arundinacea* L.). For centuries, arrowroot has been regarded as a gentle food for infants, patients, and those recovering from illness. In kitchens, it has been prized as a natural thickener for puddings and sauces. In traditional medicine, it has been trusted to ease digestive problems. Today, science is beginning to validate what traditional wisdom has long known: arrowroot is more than just starch it is a functional food with nutritional, medicinal, and economic potential (Kumar *et al.*, 2020). This article traces the journey of arrowroot from its ancient roots to its modern rediscovery as a smart food, highlighting its history, nutritional value, medicinal uses, culinary applications, and prospects in sustainable agriculture.

A Root with Ancient Roots

Arrowroot is believed to have originated in the tropical Americas, especially in the Caribbean and South America. Indigenous communities cultivated the plant not only for food but also for its medicinal properties. The name “arrowroot” is thought to derive from its traditional use in treating wounds caused by poisoned arrows (Smith, 2015). By the 16th century, Spanish and Portuguese explorers had introduced arrowroot to Africa and Asia. The crop adapted well to India’s warm, humid conditions and became integrated into traditional diets, particularly in Kerala, Tamil Nadu, and Karnataka (Rao and Reddy, 2018). In these regions, arrowroot powder has long been used to make porridge, biscuits, and gruels foods considered safe for children and patients. Folklore and traditional medicine reinforced arrowroot’s reputation as a “sick-room food.” Mothers prepared arrowroot gruel for children with diarrhea; elders consumed it to regain strength after illness. Its cultural identity as a healing food ensured that arrowroot remained in kitchens and pharmacies alike, even as other staple crops gained prominence.

Nutritional Composition

Arrowroot flour is primarily composed of starch, but unlike many starches, its fine granules make it exceptionally digestible. This property explains its popularity as a food for infants and invalids. A typical nutritional profile of arrowroot flour per 100 g is as follows (Kumar *et al.*, 2020; Sharma and Devi, 2021):

Nutritional Composition of Arrowroot (*Maranta arundinacea* L.) per 100 g Edible Portion

Nutrient	Amount
Energy	65–100 kcal
Carbohydrates	13–23 g
Protein	0.3–0.5 g

Fat	0.1–0.2 g
Dietary Fiber	1–2 g
Calcium	40–45 mg
Iron	0.8–1.3 mg
Potassium	450–500 mg
Magnesium	25–30 mg
Phosphorus	80–100 mg
Vitamin B6	0.1–0.2 mg
Folate	20–25 µg
Vitamin C	5–8 mg

Arrowroot is naturally gluten-free, making it ideal for people with celiac disease or gluten sensitivity. Its protein content, though modest, is higher than that of many other tuber crops. The fiber content aids digestion, while minerals like potassium and magnesium support heart and muscle health. Importantly, arrowroot starch granules are small and smooth, leading to quicker digestion and less irritation in the gastrointestinal tract compared to other starches (Patel, 2019). This property has made arrowroot a trusted dietary choice for children and those with delicate digestive systems.

Traditional Medicinal Uses

Arrowroot has a long-standing reputation in folk medicine across continents. In South America, it was used to treat wounds, reduce inflammation, and ease digestive discomfort (Smith, 2015). In India, Ayurvedic practitioners recommended arrowroot gruel for conditions like diarrhea, gastritis, and fever (Rao and Reddy, 2018).

Key medicinal applications include:

- **Digestive aid:** Arrowroot porridge has been used to control diarrhea and soothe irritable bowels. Its mild astringent properties may reduce intestinal inflammation (Kumar et al., 2020).
- **Soothing agent:** Arrowroot paste has traditionally been applied to wounds, bites, and rashes. Its cooling effect is thought to reduce irritation.
- **Weaning food:** Because it is light and hypoallergenic, arrowroot powder is often one of the first semi-solid foods introduced to infants.
- **Support for recovery:** Patients recovering from fever or surgery were traditionally given arrowroot-based dishes to regain energy.

Modern research supports some of these claims. Studies indicate that arrowroot flour may act as a prebiotic, supporting beneficial gut bacteria such as *Lactobacillus* and *Bifidobacterium* (Sharma and Devi, 2021). Its ease of digestion makes it suitable for patients with gastrointestinal disorders.

Culinary Versatility: More than Just a Thickener

Arrowroot's role in the kitchen extends well beyond its reputation as a bland porridge base. Its culinary appeal lies in its versatility:

- **Thickening agent:** Arrowroot produces a smooth, glossy texture in soups, sauces, and custards. Unlike corn starch, it works well at lower temperatures and in acidic foods (Patel, 2019).
- **Gluten-free flour:** Blended with rice, millet, or chickpea flours, arrowroot flour improves the texture of gluten-free breads, cakes, and cookies.
- **Light snacks:** Arrowroot biscuits are still popular in Indian households, marketed as healthy, easily digestible snacks.
- **Specialty foods:** In some cultures, arrowroot is used in festive sweets, baby foods, and traditional herbal preparations.

Chefs and food innovators appreciate arrowroot for its “invisible” quality: it thickens without altering flavor. As a result, arrowroot is increasingly used in gourmet cooking, gluten-free diets, and health foods.

Arrowroot in Modern Food and Industry

The growing demand for natural and clean-label ingredients has revived interest in arrowroot. Its applications now extend into several industries:

- **Food processing:** Arrowroot flour is used in baby food, instant puddings, sauces, and bakery products.
- **Pharmaceuticals:** Its binding and soothing properties make it useful in tablets and oral formulations (Naik *et al.*, 2022).
- **Cosmetics:** Arrowroot powder is a natural absorbent and is increasingly used in body powders, deodorants, and dry shampoos.
- **Industrial uses:** It serves as a biodegradable alternative in textiles, paper sizing, and adhesives.

This versatility enhances arrowroot's value as both a household ingredient and an industrial raw material.

Cultivation and Economic Potential

Arrowroot is a perennial herbaceous plant that grows 1–1.5 meters tall, with rhizomes harvested after 10–12 months. It thrives in sandy loam soils, moderate rainfall, and partial shade. The crop requires minimal fertilizers and pesticides, making it a sustainable option for smallholder farmers (Naik *et al.*, 2022).

Processing involves washing, peeling, and grating the rhizomes, followed by extraction and drying of the starch. While labor-intensive, value addition significantly increases market returns. Packaged arrowroot powder, biscuits, and baby food fetch higher prices compared to raw tubers. In states like Kerala, farmer cooperatives have successfully developed arrowroot-based cottage industries, supplying both local and urban markets. With rising awareness of gluten-free foods, arrowroot presents an opportunity for farmers to diversify crops and boost incomes.

Case Study: Arrowroot in South India

In South India, arrowroot cultivation provides a fascinating example of how a traditional crop can support both nutrition and livelihoods. In Kerala's Wayanad district, tribal communities have long grown arrowroot alongside other tubers, using it as a staple in weaning foods and light porridge for children and the elderly. Recently, women's self-help groups have transformed this humble root into value-added products such as packaged arrowroot powders, biscuits, and health snacks, marketed both locally and through online platforms. Similarly, in Karnataka, agricultural universities are promoting arrowroot as a supplementary crop for small-scale farmers, emphasizing its low input requirements, climate resilience, and potential for income generation. These community-driven initiatives highlight arrowroot's dual role: as a nutritious, easily digestible food for households and as a marketable product that strengthens rural economies. By combining traditional knowledge with modern processing and marketing strategies, arrowroot demonstrates how an underutilized root crop can achieve relevance in today's health-conscious and economically driven markets. Similarly, in Karnataka, AICRP on Tuber crops, Regional Horticulture Research and extension center, Dharwad are promoting arrowroot as a supplemental crop in home gardens and small farms. These community-driven initiatives highlight arrowroot's potential not just as a health food, but also as a tool for rural development and livelihood generation.

Future Prospects: From Tradition to Smart Food

Global food trends are increasingly favoring natural, sustainable, and functional foods, and arrowroot fits seamlessly into this evolving landscape. Its status as a gluten-free, easily digestible, and nutrient-rich tuber makes it highly appealing to health-conscious consumers, from those managing celiac disease to individuals seeking light, wholesome alternatives to conventional starches. Beyond traditional culinary uses, arrowroot's bioactive compounds, such as phenolics and resistant starch, suggest potential for supporting gut health, regulating digestion, and contributing antioxidant and anti-inflammatory benefits. These properties

position arrowroot as a promising ingredient for functional foods and nutraceuticals, including fortified biscuits, ready-to-use porridge mixes, and dietary supplements. Moreover, the development of value-added products such as gluten-free bakery goods, instant arrowroot mixes, and health-oriented snack bars could significantly enhance its market potential. In industrial applications, arrowroot starch can be used as a natural thickener, binder, or biodegradable material, aligning with environmentally conscious production trends. Future research focusing on prebiotic effects, bioactive compound characterization, and clinical validation of health benefits could further establish arrowroot as a scientifically backed “smart food.” By combining these modern applications with centuries of traditional knowledge, arrowroot has the potential to emerge as a globally recognized superfood, offering nutritional, culinary, and economic value while supporting sustainable agricultural practices.

Conclusion

Arrowroot’s journey from a traditional healing food to a modern “smart food” reflects the timeless value of natural crops. It is more than just starch it is a symbol of resilience, wellness, and sustainability. For farmers, it offers economic opportunities; for consumers, it offers health and culinary versatility. As we embrace healthier, more sustainable diets, perhaps it is time to look back at what our grandmothers already knew. The hidden power of arrowroot lies not just in its starch, but in its ability to connect tradition, nutrition, and innovation making it a root truly worth rediscovering.

References

1. Kumar, A., Singh, R. and Patel, S., 2020, Medicinal potential of arrowroot: A review. *Pharmacognosy Research*, **12**(1):35-40.
2. Naik, G., Hegde, V. and Prakash, S., 2022, Arrowroot cultivation and value addition in tropical agriculture. *Journal of Root Crops*, **48**(1):15-22.
3. Patel, D., 2019, Functional properties of arrowroot starch in food processing. *Food Technology Today*, **33**(2), 44–50.
4. Rao, P. and Reddy, M., 2018, Nutritional evaluation of arrowroot starch. *Indian Journal of Food Science*, **45**(2): 89-94.
5. Sharma, N. and Devi, L., 2021, Gluten-free potential of arrowroot flour. *International Journal of Nutrition and Food Engineering*, **7**(4): 56-63.
6. Smith, J., 2015, *Traditional Uses of Arrowroot in South America*. *Journal of Ethnobotany*, **21**(3), 112–118.

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RHREC Dharwad Showcases Best-Yielding Arrowroot Entries