

Food as Medicine: Purple and Orange Sweet Potatoes

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2025-12-17 | 2026-03-28

Disclaimer

This blog is the first in a planned series on food as a path to health. Wherever possible, I have given expert references to back up what I have stated. Nevertheless, I must start with a disclaimer.

I am not a medical practitioner. The suggestions proffered through this blog are not a substitute for competent professional medical advice. Their sole purpose is to share what I have learned, so that others might be inspired to commence their own, personally crafted journeys to health and wellness through food, after seeking proper professional guidance.

We live in an age of food allergies. Even if you feel inspired to try the path I have trod, you *must* clear, with your own personal physician, the unfamiliar foods you are here inspired to consume. I do not assume any liability for problems that may arise if you ignore this warning.

Caveat lector!

आहारः औषधवत्, औषधम् आहारवत्।

āhārah auṣadhavat, auṣadham āhārat.

Food (should be) like medicine; medicine (should be) like food.

AYURVEDIC STYLE APHORISM

உணவே மருந்து; மருந்தே உணவு.

Uṇavē marundu; marundē uṇavu.

Food itself is medicine; medicine itself is food.

SIDDHA STYLE APHORISM

ἐν τροφῇ φάρμακον ἄριστον, ἐν τροφῇ φάρμακον κακόν.

en trophē pharmakon ariston, en trophē pharmakon kakon.

In food is the best medicine; in food is also the worst medicine.

HIPPOCRATES

How my quest began

It all started in late 2019, before the COVID-19 pandemic, while I was in hospital as the attendant¹ to my wife, who was scheduled for surgery.

¹ In India, it is a pre-requisite for a relative or friend of an admitted patient to be in the same room as the patient, full time, keeping watch over them and their welfare. Such a person is called an *attendant*. This is not the practice in countries like Singapore, Malaysia, the United States, the UK, Canada, or Australia. But in India, a patient *has* to have a named and present attendant before he or she is admitted.

To while away the boredom, I tuned in to a BBC documentary channel on the TV in the hospital room. The featured programme happened to be on the longevity of the people of **Okinawa**.² The documentary was utterly engrossing. Its primary thesis was that the purple sweet potato—a foundational part of Okinawan diet—was a major contributor to the well-being and longevity of Okinawans.

I cannot now find a link to that BBC documentary. But there is a **short clip entitled “Can this purple vegetable be the secret to a long life?”** [1] that summarizes the facts on “why the people from the island of Okinawa off Japan, live longer than anywhere else in the world and far fewer elderly suffer dementia.” [1].

While not all of us might desire to live to a hundred years or beyond, I think everyone would desire to live their lives without physical or mental deficits, until the end. And that was how my quest for physical and mental health/wellness through **superfoods** [2,3] began.

Digging deeper

The **sweet potato, *Ipomoea batatas* (L.) Lam.**, is a humble and shy vegetable—a root tuber that hides itself by growing underground. After watching the documentary on Okinawa, I decided to dig deeper (pun intended) into sweet potatoes.

A wee bit of science

The scientific basis for recommending purple and orange sweet potatoes in preference to white ones is presented here.³

The major dietary characteristics of white, orange, and purple sweet potatoes are summarized and tabulated below in Figure 1:

Feature	White Sweet Potato	Orange Sweet Potato	Purple Sweet Potato
Primary Pigment	Minimal	Beta-carotene	Anthocyanins
Characteristic	Fibre-rich	Vitamin A-rich	Antioxidant-rich.
Health Benefit	Low Glycemic Index Feeds gut microbiome	Protects Vision Supports Immunity	Prevents Diabetes Protects Heart and Brain
Antioxidant Level	Low	Moderate to High (Carotenoids)	Very High (Polyphenols)
Texture	Dry, crumbly, starchy	Moist, creamy, soft	Dense, dry, earthy
Sweetness	Mild, nutty	High, dessert-like	Low to Medium

Figure 1: Comparison of three different sweet potato **phenotypes** and their characteristics.

² Okinawa is part of the **Blue Zones** where people live longer and happier than elsewhere on Earth.

³ Colour in this context refers to flesh colour; not skin colour. I have used the term *white* to refer to the nearly white colour of the most common variety of sweet potatoes.

Sweet potatoes confer manifold dietary benefits. To understand the what and the how of these benefits, we need to make a slight detour into the scientific basis behind this, albeit in simplified fashion.

Free Radicals and Antioxidants

Free radicals may arise in the body as a result of natural processes, or from external causes like the environment. They are unstable, electron-hungry molecular marauders that roam the human body, damaging cellular DNA, and causing chronic inflammation, in their virulent quest for that elusive electron.

Generally, when a free radical wrests an electron from another molecule, the electron donor would itself turn into one or more free radicals. Such a cascade can trigger a chain reaction of unstable molecules, leading to **oxidative stress** in the body, which accelerates ageing and causes chronic inflammatory conditions like diabetes, heart disease, cancer, dementia, and the like [4–6].

Antioxidants are another class of molecules that can assuage the free radicals' hunger for electrons by donating electrons to them. They may be *endogenous* compounds like enzymes produced internally by the body, or *exogenous* substances, like vitamins, consumed from the outside.

Their claim to fame is that, after they neutralize free radicals, *antioxidants retain their own stability*, thereby arresting the cascade of free radical production, and stalling cellular damage from oxidative stress. Antioxidants are sometimes unflatteringly described as “free radical scavengers”.

Think of free radicals like gangs of rampaging thieves and antioxidants like the police, maintaining law and order. When the opposing forces are balanced, harmony reigns. Otherwise bodily mayhem can and does ensue.

Back to sweet potatoes

In this battle of good versus evil, where do sweet potatoes feature? They supply the “good guys” or antioxidants to neutralize the free radicals, thereby promoting bodily harmony, subduing inflammation, and preventing disease.

The **Venn diagram** shown in Figure 2 traces the chemical genealogy of the antioxidants in purple and orange sweet potatoes. It helps us understand why their benefits are not identical, and also why sweet potatoes in general—and these two varieties in particular—promote health and well being, so directly.

The term antioxidant is a *functional classification*. Substances belonging to different, large families of chemicals exhibit antioxidant properties. Indeed, antioxidants can range from enzymes and vitamins, through preservatives, to pigments.

With sweet potatoes, we are focused on two pigment-based antioxidants: **anthocyanins** for the purple variety, and **beta-carotene**, also written as β -carotene, for the orange variety.⁴ The chemical families giving rise to these two distinct colours—the **polyphenols** and the **carotenoids**—are

⁴ Structurally, the overall molecular configuration is, in a manner of speaking, circular for the anthocyanins and linear for the beta-carotene.

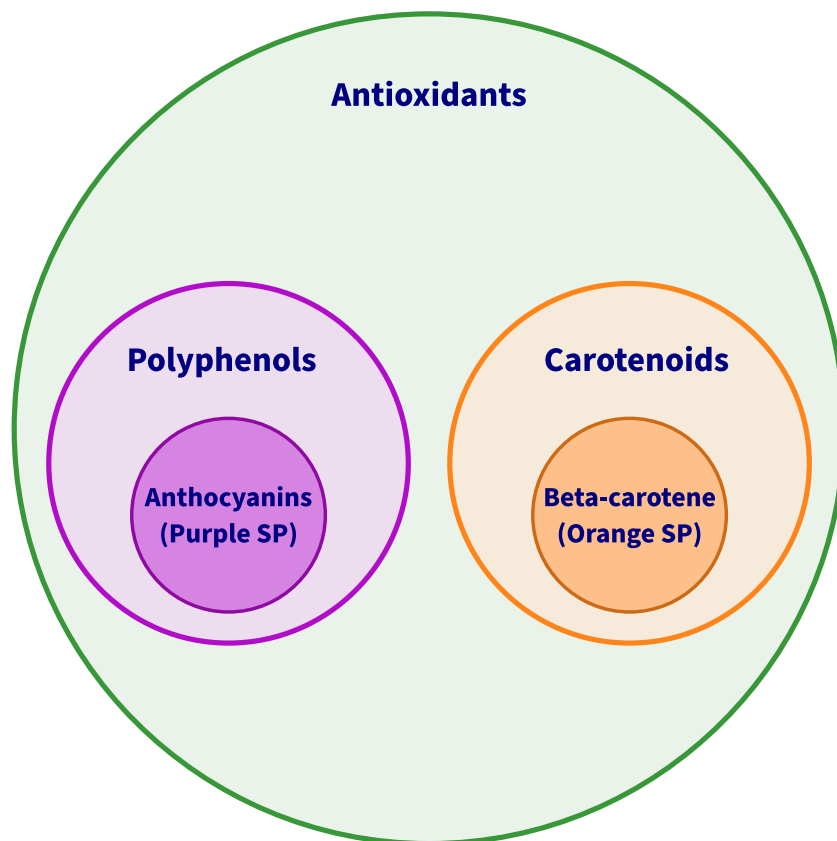


Figure 2: The term *antioxidant* is a functional classification. *Polyphenols* and *carotenoids* are different families of antioxidants. The pigments—anthocyanins and beta-carotene—are the specific antioxidants found in purple and orange sweet potatoes respectively.

structurally different, and do not overlap, as shown in Figure 2. Succinctly put, the *colour* of the sweet potato determines the type of health benefit it confers [7].⁵

Benefits

The benefits of purple sweet potatoes have been amply extolled on many YouTube videos and their associated blogs [8–14]. The specialist literature is also copious; we cite a only few representative articles here. [15–21].

Lower Glycaemic Index

Although its name has the adjective *sweet* in it, the **Glycaemic Index** (GI) of sweet potatoes is *lower* than that of the normal potato, when cooked the same way. A lower glycaemic index means blood sugar rises more slowly after eating, which is important for diabetics and for weight management.

The method of cooking affects the value of the glycaemic index. Generally, boiling gives a lower glycaemic index than baking or roasting [22]. Moreover, the **glycaemic load**, related to the quantity consumed, is more important than the glycaemic index in preventing diabetes.

Boiled sweet potatoes have a GI of 44–46 (low GI), whereas standard boiled ordinary potatoes have a GI of 56–101 (medium to high GI) [23]. The single vital takeaway is that *sweet potatoes—regardless of their colour—have lower glycaemic indices than normal potatoes, and are more friendly to diabetics* [23,24].

Resistant starch and fibre

Resistant starch (RS) is starch that resists digestion in the small intestine of healthy individuals. This is the mechanism by which sweet potatoes exhibit a lower glycaemic index than ordinary potatoes, despite both being carbohydrate-rich. Resistant starch and fibre also feed gut-friendly bacteria and promote gut health [25–28].

Beta-carotene promotes good eyesight

The orange pigment, beta-carotene is a precursor from which the body makes the fat-soluble Vitamin A, which promotes night vision, eye moisture, and overall immune function. In order to obtain the maximum benefit, orange sweet potatoes should preferably be cooked in a fat or oil. [14]

Anthocyanins relieve oxidative stress

The anthocyanins in purple sweet potatoes act as antioxidants and boost overall health by neutralizing free radicals and preventing oxidative stress. It helps in preventing degenerative conditions like diabetes, heart disease, dementia, etc. [17–19,29–31].

Purple sweet potatoes and islands?

An interesting fact emerged while I was researching material for this blog. Purple sweet potato cultivars have been cultivated on *islands* like Okinawa, Hawaii, Bali, Sri Lanka, Taiwan, and

⁵ The maxim “Eat a rainbow in every meal” should now be self-explanatory.

possibly elsewhere [32]. This throws up an intriguing question of why this should be so.

One intriguing hypothesis is that islands are particularly prone to storms which could conceivably destroy crops like rice. The islanders would have been prompted to find substitutes for rice like the Okinawans did, and empirically settled on the purple cultivar as being more healthful.

The Indian context

The sweet potato is called *carkkaraivaḷḷik kilāṅku* (சர்க்கரைவள்ளிக் கிழங்கு) in Tamil. The variety available at produce markets in **Coimbatore, Tamil Nadu**, where I live, has a pink skin and off-white flesh. It is the only variety sold at local outlets. It is different from the Okinawa purple sweet potato, which has a ruddy purple skin and uniform purple flesh. It is also visibly different from the orange sweet potato.

Both purple and orange sweet potatoes are beneficial and complementary in their health benefits. Either is far superior to the pink-skinned white-fleshed variety currently on sale.

The sweet potato may be boiled and eaten as is, steamed and mashed, or incorporated into a stew (*kūṭṭu/கூட்டு*) or curry (*kari/கறி*).

Interestingly, both the purple and orange sweet potatoes have traditionally been available at produce markets in South East Asian countries like Malaysia, Singapore, Indonesia, etc.

Given their demonstrated benefits—already documented some years ago in the Indian literature [20,21,33,34]—why are there no purple or orange sweet potatoes on sale in the markets in Coimbatore?

The Odisha story

I found out that both the purple and orange sweet potato varieties have been acclimatized to Indian conditions and developed as distinct cultivars at the Central Tuber Crops Research Institute in **Bhubaneswar, Odisha** [35]. The purple cultivar has been christened “Bhu Krishna”, and the orange cultivar, “Bhu Sona” [35,36]. The interested reader is urged to read these articles online. The upshot is that these cultivars *are* available in India.

My own experience

A friend of mine helped me to get **slips** of both varieties, and I tried growing them in my home garden. The first harvest was **underwhelming**. But the second time around, after I ensured proper soil preparation, timing, and harvesting, the results were modest but encouraging. Some images of the purple sweet potato bed and the dug-out tubers from my garden are shown below, demonstrating that this vegetable *can* be planted and harvested successfully in and around Coimbatore.

Dissemination to farmers

Certified slips for the Bhu Krishna (purple) and Bhu Sona (orange) sweet potatoes may be obtained from:



Figure 3: The purple sweet potato patch in my garden.



Figure 4: Some sweet potatoes freshly harvested from the ground.



Figure 5: One tuber has been cut in half to reveal the natural purple colour of its flesh.

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Regional Centre---Bhubaneswar
Bhubaneswar, India

Contact Details

Farmers with suitable tracts of land, a compatible soil type, and availability of sufficient water and labour should therefore be encouraged to plant purple and orange sweet potatoes, instead of, or in addition to, the currently cultivated variety.

It is noteworthy that sweet potato is relatively drought-tolerant [33] and a short-duration crop (with a plant-to-harvest cycle of three to four months and will therefore be attractive to small farmers. It is likely that the orange and purple cultivars will fetch a premium price given their novelty and health benefits [34].

And that is the burden of this blog: to disseminate the benefits of purple and orange sweet potatoes, so that farmers feel sufficiently motivated to cultivate and sell them at local produce markets.

If, in turn, the buying public are inspired to try out these sweet potatoes, we would be on the **cusp** of a revolution to improve overall public health through wellness-promoting food.

Kindly disseminate this message among your farmer friends.

Key Takeaways

- Boil purple sweet potatoes and eat them to prevent diseases like diabetes, heart disease, cancer, dementia, etc.
- Cook orange sweet potatoes in fat or oil and eat them to promote eye health and immunity.
- Eat sweet potatoes instead of potatoes for a lower glycaemic load [35].⁶
- Sweet potatoes with resistant starch and fibre provide gut microbiome support [16].
- Purple sweet potatoes may protect brain function and reduce dementia risk [9].⁷
- The anti-inflammatory properties of anthocyanins in purple sweet potatoes may reduce heart disease risk [17,30].
- Anthocyanins in purple sweet potatoes may have anti-cancer properties [35].

Acknowledgements

I am deeply grateful to my dear friend, Professor M Muthuraman, retired Professor of Entomology, **Tamil Nadu Agricultural University**, for helping me to procure slips of the “Bhu Krishna” and “Bhu Sona” cultivars of the sweet potatoes for planting.

⁶ Vital, given India's diabetes epidemic.

⁷ The Okinawa evidence.

Feedback

Please [email me](#) your comments and corrections.

A PDF version of this article is [available for download here](#):

<https://swanlotus.netlify.app/blogs/food-as-medicine-1.pdf>

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