

Nourishment

Meditation on a *mangueira*: 2



A mango from our garden in Cabo Frio (centre) just fallen in the early morning from its tree (left). It is easy to see why in India (right) the mango fruit is the symbol of female ripeness and fertility

This is written in our house in Ogiva, a suburb of Cabo Frio, on the coast of Rio de Janeiro state. In my last column I began to meditate on the *mangueira*, the mango tree in the garden. Cabo Frio is where Amerigo Vespucci landed in 1503. Here is where the *brasil* tree from which this country gets its name was first exploited. I mentioned previously that *mangueiras* may bear fruit for 250 years and more. This makes me feel reverent. The tree was never ‘ours’. One of our duties in selling the house is to find new owners who will cherish the *mangueira*, and who in due course will want to ensure that the owners after them will also do so.

Nourishment is more than nutrients

Sustained attention to any living thing that is a source of food for us humans, or that is eaten by any other living thing, shows what nourishment really means, and is a reminder of the limitations of a nutrition science that undervalues, overlooks, or even ignores life itself. To judge the quality of food in terms of its nutrients, which is to say its chemical composition, is to treat food as if it is a corpse, or in the case of minerals and trace elements, a stone.

What is life? ‘Hard’ scientists may complain that life itself cannot be measured or even defined. True, but this is not a reason to act as if life does not matter or does not exist. Even if we cannot define or measure what our being alive is, here we are. Besides, there are ways to take life into account, when making recommendations on what to eat. Two of my favourite sayings are ‘long shelf life causes short human life’, and ‘good food goes bad’. It would be fun to build a new food pyramid whose only criterion of quality was degree of perishability at ambient temperature. Sugar would

have a place of its own: it is the only edible substance that kept dry remains edible forever, one reason why it is the most profitable legal cash crop after tobacco.

In our garden

These were some of my thoughts as just after dawn the day before I write this, I picked up the mango above, fallen from the tree in our garden. The stump of its stalk, which you can see, was still oozing nourishment from one of the tree's many hundred botanical versions of umbilical cords. I held the big mango in my hand, went inside, peeled and sliced it, and ate it for my breakfast – mindfully, as my colleague and friend Carlos Monteiro recommends.

Any mango may seem the same to city eyes, but not to people who live as we do with *mangueiras*. A *manga Rosa*, the variety we have, picked from the ground and eaten warm, is different from a *manga Tommy* selected from a supermarket. The *Tommy* (short for Tommy Atkins), the commercial leader, looks lovely, keeps well, resists diseases, and is pulpy and tastes blah. *The manga Rosa* can be rosy like the one above, and also comes in other colours, some not attractive, has a short shelf-life (who wants to keep them on a shelf!), is devoured by birds and ants unless you get there first, and is smooth in the mouth and tastes divine.

Our 9 year-old Gabriel taught me a lesson. A few days ago we gathered mangoes, including some pecked by the birds the tree also nourishes. No supermarket 'perfection' in our household! Share and share alike, is what we believe. Gabriel pointed out the wreck of an over-ripe mango, which seemed to be alive and moving, because covered with thousands of tiny ants, almost pin-head size, the type that in centuries gone by were thought to generate spontaneously. Where had they come from, where would they go? Next day, the same mystery, in the kitchen. Overnight I had left a plate with some mango bits in the sink, unwashed. In the morning it was also swarming with tiny ants. How did they get there? How did they climb in? Washing up the plate, I felt bad, for they had a right to live too. Sorry, ants.

With Gabriel I acted the parent. There is a book by a South African writer Eugène Marais called *The Soul of the White Ant*, I said. He spent many years observing termites and thinking about them, and realised that their identity is not individual, as we think of ourselves, but is the whole community, the entire nest or mound and everywhere they go. Everybody knows that, said Gabriel. Well, I said, Eugène Marais understood this first and best, he is why your teachers know it from what they have been taught, and that is how come they taught you. Gabriel also knew from watching files of leaf-cutters scurrying plants to nest and back again, and again. He tells his mother to avoid running over leaf-cutters when she backs the car out of our drive.

Soon it will be time to plant seeds from the *mangueira* in our garden in Juiz de Fora in the state of Minas Gerais. Life continues, from generation to generation.

The origin of mangueiras

Mangueiras are not native to Brazil. Those in Brazil originally came from India, where they are the national fruit. Half of the world's 25 million tonnes of mangoes come from India. They were brought to Brazil by seafarers and settlers from the Portuguese colonies in India including Goa and Macau. Pedro Álvares Cabral, who is (wrongly) credited with the European discovery of Brazil, landed in what is now Porto Seguro in the state of Bahia, not far north from where I am in Cabo Frio, having been blown off course on his way to India. Mangoes need heat, and trees grown in the southern uplands of Brazil bear no fruit.

When I lived in the UK I thought there was one type of mango. There are many hundreds. As well as *Rosa* and *Tommy*, in Brazil there are *Alfa*, *Bourbon Vermelha*, *Chana*, *Carlota*, *Comum*, *Espada Stahl*, *Haden*, *Keitt*, *Kent*, *Malika*, *Ourinbo*, *Palmer*, *Surpresa*, *Ubá*, and many others. Thirteen years ago at Christmas time, I swear I was offered *manga Jasmim* by Dona Silveirinha the family matriarch, fresh from the central market in Fortaleza in the north-eastern state of Ceará. Yes, I savour the perfume of jasmine even now. But I cannot find this variety listed. Perhaps it is a secret.

Reverence for trees



In many cultures trees are venerated, as is the mango tree in India, as a symbol of life, as a provider of shade and shelter for insects, plants, birds, animals, crops and people, and as the community centre

It is not by chance or whim that the *mangueira* is the national tree of India. Nor is this a mere symbol in the sense that most Europeans or North Americans understand. In the countries where it originated, the tree is a source of life. Religions based on nature venerate trees that are home and nourishment for insects, birds and animals, and whose cool shade shelters crops. But there is more. *Mangueiras* are big bushy trees. In Indian villages they are the place where, in the evenings in the shade, the community meets to share experiences, report news, and make decisions. It is natural for villagers to feel that the *mangueira* under which they and their ancestors have gathered, embodies the spirit of the place. They are garlanded, as shown above, right; and the Jain goddess Ambika (left) is usually depicted sitting under a *mangueira*.



The mangueira in our garden in Cabo Frio bears enough fruit for the whole neighbourhood (left), and nourishes insects and birds as well right). Its abundance is a reminder of the nature of life

Another aspect of *mangueiras* is abundance. At a guess, I daresay the tree in our garden drops 500 fruits each weighing over half a kilogram, every year. Right now after a couple of hours writing this piece, I walk out in the late afternoon and five more have fallen, two pecked (one of these is above, right), one and one only mysteriously attractive to the tiny ants, and two that could be sold to a supermarket. All ripe and luscious and aromatic. Inside I cut off the part of the mangoes that the birds ate and slice these for the family first. A *mangueira* makes people sociable. Even a large family could never eat all the mangoes from one tree. Giving mangoes away is part of the process of having a *mangueira* in your garden. Giving and accepting gifts of mangoes, creates a sense of community with neighbours, and even with passers-by.

This brings me to a touching story. A few mornings ago our housekeeper heard somebody on the sidewalk outside our house throwing bricks up into the tree, as happens. Mangoes ripen suspended on long thin stalks and are fairly easy to dislodge. Anyway, Aparecida went outside and gave him a hard look and he said sorry, but could he call next day for some mangoes, and she allowed this, and the next day also, and today he telephoned and they are going out for a date. ‘He thinks you are a mango’ I said to her. Well, who knows? If one thing leads to another and then some more, we may supply the mangoes at their wedding.

All this and nutrition too

Do I sense you the reader thinking ‘nice thoughts and stories, but what does this have to do with nutrition?’ Well, all this does relate to conventional nutrition. Mangoes, as we all know, are good sources of carotenoids, vitamin A precursors.

In the tropics this is a Good Thing, because deficiency in vitamin A, including that with clinical signs such as damage to eyes and even blindness, especially in children, is endemic in various tropical regions. Estimates of prevalence of genuine deficiency, including as issued by UNICEF and WHO, are exaggerations, but that’s another story. What the UN Food and Agriculture Organization says, and I agree, is that the most rational, economical, equitable and sustainable protection against shortage or deficiency of vitamin A, is consuming lots of foods that are good sources of retinol, and of carotenoids. Such as mangoes. Now please study the table on the next page.

Table 1

Brazilian fruits that are good or excellent sources of carotenoids

Food	Type	Cheap or free (1)	Source of mics (2)	RE/mcg 100g (3)	100%+ 100 g (4)
Abóbora (pumpkin)	Vegetable	YES	YES	350	
Abóbora (leaves)	Leaf	YES	YES	600	YES
Alfalfa	Leaf	YES	YES	1,140	YES
Babaçu	Fruit, nut	YES	YES	?	LIKELY
Babaçu	Oil	YES	YES	?	LIKELY
Batata doce (sweet potato)	Root	YES	YES	300	
Batata doce (leaves)	Leaf	YES	YES	975	YES
Bertalha	Leaf	YES	YES	582	YES
Bettaraba (beetroot)	Root	YES	YES	-	
Bettaraba (leaves)	Leaf	YES	YES	525	YES
Buriti (palm) (pulp)	Fruit, nut	YES	YES	6,000	YES
Buriti (oil)	Oil	YES	YES	50,000	YES
Caruru	Leaf	YES	YES	530	YES
Cenoura (carrots)	Root	YES	YES	1,100	YES
Coentro	Leaf	YES	YES	533	YES
Couve (like cabbage)	Leaf	YES	YES	600	YES
Dendê (red palm) (pulp)	Fruit, nut	YES	YES	10,166	YES
Dendê (oil)	Oil	YES	YES	45,920	YES
Espinafre (spinach)	Leaf	YES	YES	585	YES
Macaúba (palm)	Fruit, nut	YES	YES	?	LIKELY
Macaúba (oil)	Oil	YES	YES	?	LIKELY
Mandioca (cassava)	Root	YES	YES	-	
Mandioca (leaves)	Leaf	YES	YES	1,960	YES
Manga (mango)	Fruit	YES	YES	750	YES
Mostarda (mustard)	Leaf	YES	YES	700	YES
Paprika	Vegetable	YES	YES	470	
Pequi	Fruit, nut	YES	YES	20,000	YES
Pequi	Oil	YES	YES	28,196	YES
Pimenta (pepper)	Vegetable	YES	YES	1,356	YES
Pupunha	Fruit	YES	YES	1,500	YES
Tucumã	Fruit, nut	YES	YES	6,000	YES
Tucumã	Oil	YES	YES	31,300	YES
Urucum	Fruit, nut	YES	YES	?	LIKELY
Urucum	Oil	YES	YES	?	LIKELY
Vinagreira	Leaf	YES	YES	689	YES

1. Cheap or free, meaning low price in shops or readily grown, picked, or retrieved
 2. Source of mics - a good source of other micronutrients and bioactive compounds
 3. RE/mcg/100 grams - retinol equivalents measured in micrograms contained in 100 grams. But most of these values vary greatly depending on climate, species and other factors
 4. 100% + 100g. YES means that 100 grams (or in the case of fats, 15 grams) contains more than 100% of the estimated average daily requirement of vitamin A (500 RE mcgs)
- YES** in bold means that a portion contains more than the requirement for a week. Recommended amounts of vitamin A are higher in the US, as are the reference nutrient intakes (RNIs) in the UK.

Compiled not long after I began to live in Brazil for a small book (1), the purpose of the table, and an accompanying one on animal sources, was to prove that plant foods are the best sources of vitamin A. The conventional theory that children in particular need to eat animal foods to gain adequate amounts, is just plain wrong. Or to be more precise, in parts of the world where animal liver, fortified milk, butter, cheese and eggs are available and affordable, such animal foods are good and adequate sources. But in the tropics, where all sorts of leaves, fruits, nuts, seeds and oils are abundant, there is no need for animal foods as sources of vitamin A, at all.

One of the various reasons for the mistake, is that many of the richest sources of vitamin A in the tropics are plant foods whose analyses do not appear in tables of chemical composition prepared in temperate countries. Take the items listed in the table. You may have heard of *dendé*, which is a type of palm fruit and oil from Africa, brought to Brazil by slaves. But *buriti*, *pequi* and *tucumã*, with staggering amounts of retinol equivalents, are native to Brazil, and I found most of the results in a Brazilian food composition table published in 1981 (2) on a shelf in the federal government Ministry of Health in Brasília, where I was working between 2000 and 2002.

Now for mangoes. You will see from the table that mangoes are a good source of vitamin A. One mango a week would be adequate – easy in many parts of India, and Brazil for that matter, where vitamin A deficiency is also still endemic. But there is more to the mango story. As you may know from the UK official tables of the chemical composition of foods, the amount of carotenoids in mangoes varies vastly. A footnote in the edition I have (3) says that levels vary by a factor of 10. Furthermore, it is a fair bet that the type analysed was *Tommy Atkins*, bred in Florida in the 1930s as a great commercial product, which for this very reason is the worst source of carotenoids. Mango Board analyses show that the *Keitt* type has twice the amount of carotenoids as *Tommy*, and the Mexican *Ataulfo* five times as much (4).

That is to say, the official food composition tables on which so much food and nutrition policy and practice is based, stack the cards against mangoes as a source of vitamin A. It is a fair guess also, that the same bias will underestimate the vitamin A content of all relevant plant foods, most of all those that are imported, because the commercial varieties that are sold and available in high-income temperate countries where vitamin A deficiency is practically non-existent will always be inferior sources of carotenoids. The relevant analyses will be made in tropical countries, in areas where deficiency is still fairly common, and of varieties that grow wild or in small farms for local consumption, not cultivated for export or for distribution to national supermarkets, and which like the mangoes in our Cabo Frio garden, are eaten fresh off the tree. As far as I know such analyses have never been made. The policy of the dominant UN agencies and US-based international organisations is to supply vitamin A in the form of very high-dose capsules to children in countries reckoned to be at risk of deficiency. The comparative ignorance, disinterest and neglect of local plant sources of carotenoids, mangoes as an example, is an outrage.

The story gets worse. Again, please see the table above. The richest plant sources of vitamin A in Brazil are the fruits of trees that often grow in those parts of the country where vitamin A deficiency remains a public health issue. These natural sources are fairly well known, but ignored. Instead, the *cerrado*, the savannah region of Brazil where *pequi* grows is being destroyed to grow soya, which is for export to other countries and also to the Amazon region, where the forests are being destroyed to breed cows fed on soya. The fate of these vast cattle herds after slaughter, is to become meat, and remnants that are raw material for cheeseburgers.

The moral of this meditation on the *mangueira*, is that nourishment of humans, and of other creatures too, depends on the protection of trees and their fruits, and on understanding that locally sourced foods from trees – seeds and nuts as well as fruits – are those that are most nourishing.

References

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- 3 Holland B, Unwin I, Buss D. *Fruit and Nuts*. First supplement to McCance and Widdowson's *The Composition of Foods*, fifth edition. London: Royal Society of Chemistry – Ministry of Agriculture, Fisheries and Food, 1993.
- 4 National Mango Board. <http://www.mango.org/media/47771/phytochemicals%20in%20imported%20mangos%20exec%20summary.pdf>

Status

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