

## SWEET TART: AN INTERVIEW WITH ADAM LEITH GOLLNER

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As the name suggests, the red berry of the West African miracle fruit (*Sideroxylon dulcificum*) has one astonishing property: all sour things eaten afterwards taste sweet. In the early 1970s, two American entrepreneurs set out to isolate its active ingredient and use it as the basis for a range of food products. If they had succeeded, the US would today be inundated with miracle fruit candy, popsicles, and chewing gum, and perhaps obesity would not be the medical issue that it is. But in 1974, under rather strange circumstances, the FDA banned miracle fruit and all its derivative products. Adam Leith Gollner's forthcoming book on what he calls the "fruit underworld" examines the short, unhappy life of miracle fruit in the US. Sina Najafi spoke to him by phone.

### How did Westerners first become aware of miracle fruit?

It was first come across by a French explorer called Des Marchais in 1725 on the Gold Coast of Africa. He noted how various tribes were popping miracle fruit berries before they would eat their traditional foods—*kankies* (cornbread), *pitto* (palm wine), and *guddoe* (oatmeal gruel). He tried some and noticed that the berries made these sour foods sweet. The encounter is written about in his journals and in Jean-Baptiste Labat's *Voyage du Chevalier Des Marchais en Guinée, isles voisines, et à Cayenne* (1731). And then Dr. W. F. Daniel, a British surgeon stationed in West Africa, described it as the "miraculous" berry in 1852 in a periodical called *The Pharmaceutical Journal*. After him, several other people investigated miracle fruit, notably a plant explorer named David Fairchild who was one of the first people hired by the US Department of Agriculture to travel overseas and find out what the rest of the world had in terms of fruits and other plants that were useful and could be grown in the US. He brought miracle fruit from West Africa to a USDA agricultural station in Puerto Rico, where it was grown, though not on a large scale. Nothing much happened until the late 1960s, when some entrepreneurs came across it and realized there was enormous potential in this fruit and started doing studies to figure out how to bring it to market.

### Do other regions in the world, for example Europe, import or grow the fruit?

There are miracle fruit cafes in Japan where you can have the fruit followed by sodas, ice creams, and desserts that actually aren't sweet. Miracle fruit grows in tropical and subtropical regions all over the world, but it isn't really available on a wide scale anywhere besides tropical Africa, where it grows wild. It's a fair-sized bush, and you pluck the little berry off and pop it in your mouth. There is not a lot of flesh to it, but there is a pleasant squirt of juice that coats your tongue and deactivates all your acid taste buds, so you can only taste the sweet things in foods. You

can eat a lemon, and it tastes delicious. If something has no acidity in it, though, it won't become sweeter. For example, it doesn't really do much to coffee. The effect lasts about an hour and a half and it doesn't matter if you have one berry or a thousand—the effect is the same.

### Given the berry's astonishing effect, it's surprising that Fairchild or his successors didn't pursue it further.

A whole bunch of people, including the US Army, private researchers, and major chemical corporations, were doing experiments with it. The problem is that miracle fruit doesn't have a long shelf-life; the berry, once plucked, only lasts for a couple of days. And it has a complicated molecular structure which doesn't lend itself easily to synthesis. In 1968, two young entrepreneurs—Robert Harvey and Don Emery—pulled money together from a variety of investors, set up a company called Miralin, and started doing a very disciplined series of tests. They figured out a way to isolate the active ingredient, which is a glycoprotein, and turn it into a powder, which they called miraculin. The main visionary was Harvey, a young biomedical engineer who had made a lot of money by inventing a number of unusual contrivances, such as a nuclear-powered artificial heart. He came across this fruit and sunk some of his own money into it, and, because of his earlier successes, was able to rally other investors behind the idea. Soon enough, he had raised close to 10 million dollars to focus on figuring out how the fruit works and creating all sorts of products incorporating miraculin. Their FDA approval was pending but by 1973, they had huge plantations up and running in Jamaica, Brazil, Florida, and parts of Africa, and they started creating this marvelous suite of miracle fruit products. They had, for example, popsicles coated with miraculin. The first couple of licks covered the tongue, and then the rest of the popsicle tasted really sweet although there was no sugar in it.

### Is the sweetness any different from that of sugar?

It is absolutely different. It isn't like sugar, because it isn't exactly a sweetener. It's an elusive, illusory effect that depends on what you eat afterwards. With lemons, it has a kind of deep sweetness.

### But it seems not to be an acquired taste if a young kid could enjoy it immediately.

It is a complex taste but instantly accessible; in Miralin's market research, children preferred miracle fruit popsicles to traditional ones. Miralin also created a chewing gum; the sugar in regular gum dissipates after ten or fifteen minutes, but miracle fruit gum stayed sweet for over an hour and a half. They had miracle fruit mints, salad dressing, desserts, chewable tablets. They even had a soft drink with miracle fruit in the straw, so that the first sip would contain miraculin and make the rest of the soda taste sweet. They had an entire marketing campaign, a miracle fruit juggernaut.

**Drop sugar.  
Drop artificial sweeteners.  
Drop calories.  
Drop excess pounds.**

All recipes prepared without sugar added.

**This drop lets you eat sweet on a low calorie diet.**

The Miracle Fruit Drop introduces a new natural way to enjoy sweet snacks, desserts, refreshments without sugar or artificial sweeteners.

**Miralin's Miracle Fruit Drop.** Chewed before meals or snacks, it "sweetens" your tastebuds naturally. Normally sour foods like unsweetened fruits taste sweet without adding sugar or artificial sugar substitutes. Non-acid foods like meat, eggs, baked goods are not affected. You and your family can drop calorie-loaded sugar and still enjoy the full range of satisfying food tastes.

**Not a gimmick. Not a drug. Not an appetite suppressant.** The Miracle Fruit Drop contains a natural taste-enhancing protein from a remarkable berry, called Miracle Fruit. The Miralin Company, experts in nutrition and food technology, extracts the protein from the berry and incorporates the protein concentrate into chewable drop form.

**Miracle Fruit known for centuries.** Miralin didn't name it Miracle Fruit. Explorers did, long ago. Voyaging through the tropics, they discovered the berry's amazing ability to make acid food taste deliciously sweet. Now their discovery can help you lose weight.

**Try the acid test.** Eat a fresh grapefruit section plain. Chew a Miralin Miracle Fruit Drop. Wait one minute. Then sample the grapefruit again. Suddenly it's sweet!

**Delicious way to cut calories.** The average American consumes nearly two pounds of sugar a week, as an additive or in prepared foods. That's 500 empty calories a day! Now, using the Miracle Fruit Drop, you can cut sugar calories, and still satisfy your desire for sweet foods. To show you how, Miralin has prepared an introductory booklet with many delicious easy-to-make recipes for snacks, desserts, refreshments - even main dishes. Our food experts have also developed a great-tasting line of low calorie drinks, snacks and other food products ideally suited for use with the Miracle Fruit Drop.

**Special Offer.** To introduce you to the new Miralin method of low calorie dieting, we make this special offer: Send just \$1.49 plus 50¢ for postage and handling, and Miralin will send you a carton of 12 Miracle Fruit Drops and the introductory recipe booklet plus a free get-acquainted bonus - 6 individual servings of delicious new Miralin food products. Money refunded if not satisfied. But act now. Mail this coupon today along with \$1.99 to: MIRALIN Co., Dept. 45, P.O. Box H, Hudson, Mass. 01749.

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Mail to: MIRALIN Company, Dept. 45  
P.O. Box H, Hudson, Mass. 01749

Please send me a carton of 12 Miralin Miracle Fruit Drops and your introductory diet booklet plus the free Miralin food product bonus. Enclosed is \$1.99. I am under no obligation and may return the unused portion of this introductory offer for a full refund.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Offer expires June 30, 1974

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**Presumably diabetics were also part of the target audience.**

It was greeted with open arms by diabetics in the 70s. Miralin placed ads in diabetes periodicals and offered free samples to diabetics. They scored an enormous success rate; 85% of people who received the free samples wanted to order more. This was all while Miralin was waiting for FDA approval. Incidentally, the fruit is still used in Florida by chemotherapy patients. It removes the metallic taste caused by cancer medications, and helps patients eat food that would otherwise be unpalatable.

So Miralin had millions of dollars of products ready to go, and they'd launched their advertising campaigns. At about this point, major corporations like Lifesavers and Gillette started approaching the company and offering eight-figure deals for a controlling interest, but Harvey and Emery decided to turn down all these offers. They had already been assured several times by the FDA that they would be granted approval and they were pretty confident that they were going to be making billions of dollars.

Alongside interest from huge multinationals, the sweetening industry was playing close attention, and they weren't very happy about this new threat. The late 60s and early 70s were the glory days of artificial sweeteners: Aspartame, cyclomates, and saccharin were all introduced at around this time. Some artificial sweeteners had been banned because tests had shown that they caused cancer in lab rats. Saccharin was sold until recently with fine print saying it causes cancer. Because of health uncertainties, there was a long vetting process for any new sweeteners. In 1958, the FDA had introduced measures for protecting new foods and drugs called the GRAS system: Generally Regarded As Safe. Things eaten before 1958 that hadn't caused any notable problems, for example sugar and salt, were automatically GRAS. New substances, however, needed to be accepted by the FDA. Even so, it can take decades for hazardous effects to become noticeable, as we saw recently with Vioxx.

The FDA had approved some sweeteners without due process, and after the cancer studies, there was a lot of heat on the FDA regarding new sugar substitutes. That is very important in light of the decision that was subsequently made banning miracle fruit. You also have to bear in mind that the sugar industry itself was immensely powerful, and has been since the early days of capitalism. So you have these very powerful special interests—sugar going toe-toe with artificial sweeteners—but then out of the rubble comes this little African berry with none of the side effects of sugar or artificial sweeteners. The mere thought of it incurred the wrath of these billionaire corporations. Just to give you an indication of the level of power of these artificial sweeteners; Donald Rumsfeld was the CEO of Searle, the company that manufactured Aspartame. And these people do not want anything dipping into their profits. So just as Miralin's products are about to become available to the public, a number of mysterious events start to take place

in the middle of the night, in their headquarters in

**101** Hudson, Massachusetts, and in Jamaica, where their

major plantation was. One night in Hudson, Harvey and Emery got into a high-speed car chase. On another occasion, men in sunglasses jumped out of cars and snapped cameras in their faces to intimidate them. And coming back to work after dinner one night, Harvey and Emery noticed two men sitting in a car in the parking lot across from their warehouse. As they went up into their offices, they saw someone dash out their back door, get into the car in the parking lot, and speed off into the night. Whoever it was had rifled through their files and stolen some documents. This is in the weeks leading up to the product's commercial release.

And then came the letter from Sam Fine at the FDA dated 19 September 1974 telling them miracle fruit was not approved and was not allowed to be sold in any form whatsoever, from the berries to the powder to the popsicles to the chewing gum. The letter didn't provide any reasons, stating simply that further testing was required, which it hinted would last a minimum of three more years and cost millions more. All the investors at this point panicked and backed away. Miralin had no choice but to declare bankruptcy.

Part of the problem had been that these young guys weren't familiar with the process of dealing with the regulatory commission. They weren't following the correct protocol that is required to introduce any new substance, whether it is a food or drug. They had already started doing things without approval—that's a no-no. Compounding matters, their timing was all wrong. Artificial sweeteners were being cast in a very dubious light, and Miralin was rushing to bring its products to market. They made some of it available publicly when it wasn't supposed to be, and they did tests on little children, which they weren't supposed to do.

**The Generally Regarded As Safe principles presumably don't apply to non-Westerners. The fact that for centuries West Africans had been eating the berry didn't count, right?**

That's right. The only guy eating it in America previous to 1958 was this one fruit enthusiast who had brought a plant back from Puerto Rico. He would eat it every morning before his fruit salad, and he was fine. He is still alive.

So miracle fruit remains in a kind of legal limbo. It can be grown, you can give it to people, you can even sell a little at a time, but you cannot do so on a large scale. You can't market it either. There are dozens of small growers who have miracle fruits in their back yards in Florida and Hawaii and in greenhouses, and nobody is saying boo. The problem is when it starts threatening other major industries—that is when you are not allowed to move forward.

**To what extent was the FDA's decision the result of pressures from the large corporations and special interests?**

It is open to interpretation. But it's a marvelous fruit and we are being deprived of an all-natural wonder.

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opposite: Miralin ad from March 1974 issue of *Family Circle*.