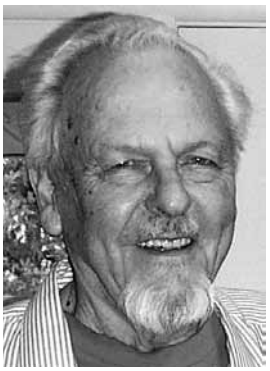
Hypotriglyceridemics: Herbs and Foods Versus the Synthetic Silver Bullet

James Duke, PhD



In his distinguished career, *James Duke* served the US Department of Agriculture for over 30 years. Before retiring, he developed his ethnobotanical and phytochemical database online at www.ars-grin.gov/duke. It is one of the most frequently consulted areas of the USDA website. Duke grows hundreds of plants on his six-acre Green Farmacy Garden with his wife, Peggy. Since retiring from the USDA, Dr. Duke has served for five years as Senior Science Advisor to Nature's Herbs and with allherb.com. Since 2001, he has been a distinguished herbal lecturer at Tai Sophia Healing Institute. He has written over 30 books on medicinal plants.

I recently read an interesting interview with Center for Preventative Cardiology director Dr. Michael Miller, MD, PhD, in the *Nutrition Action Health Letter* (July/August 2012) published by the Center for Science in the Public Interest. In this interview, entitled "Metabolic Meltdown: How a spare tire leads to diabetes and heart disease," Miller talks about health risks indicated by expanding waistlines and high triglycerides. He calls it the "hypertriglyceridemic waist" which supports a pro-inflammatory state that may be addressed by exercise, weight loss, and improved diet. Unfortunately, Miller and his associates fail to enumerate the best foods to lower triglycerides. They do give honorable mention to some supplements (such as niacin and omega-3 fatty acids).

The purpose of this rant is to enumerate some herbal alternatives for lowering triglycerides. I predict that Big Pharma will soon launch a new campaign to wantonly prescribe synthetic hypotriglyceridemics; I also predict that many herbs possessing the same action will prove safer and as efficacious as whatever drug Big Pharma gets the FDA to approve in the next few years.

The Power of Patentability

As someone who has followed medicinal plant lore for decades, I have seen a few interesting trends in the manufacturing of synthetic medicine emerge and repeat over time. Take, for example, the well-worn road from promising phytochemical to possibly dangerous synthetic drug. The late pharmacognosist and medicinal plant researcher Dr. Norman Farnsworth, PhD, once said that many of our drugs were patterned after natural medicine, and around 90% of big natural molecules were cheaper to extract from plants than they were to synthesize. But Big Pharma seems to gravitate to more patentable synthetic drugs. Sure enough, when I was at the USDA (but paid by the cancer screening program funded by the National Institutes of Health, 1977-1982), I learned, for example, that one big drug company looked at a mix of several natural anticancer lignans from the folk cancer plant, mayapple (*Podophyllum peltatum*). They took one and modified it to make the drug etoposide, which was approved first for testicular cancer and then for the big killer, small cell lung cancer, which was then killing about 100,000 Americans a year.

Very frequently in those days, chemists would take a promising natural chemical, make several unnatural modifications of it, and then take the more promising of the synthetic modifications and put them into Phase 1 and possibly Phase 2 clinical trials. The synthetic

was not necessarily better or safer than the natural parent phytochemical, but it surely was easier to protect with patents. I read paper after paper mentioning a variety of often poisonous synthetic modifications of a given promising natural medicinal molecule, often very complex, and usually cheaper to extract from the plant than to synthesize. Almost always, all or most of the synthetic modifications were less effective and more harmful than the natural compound. But the synthetic became the marketed drug, more often because of its patentability, than because of its safety or efficacy.

Saving Lives or Pushing Pills?

Here's another interesting pattern we first saw with statin drugs and now with hypotriglyceridemics. For years, even decades, Big Pharma has been targeting high cholesterol and trying to prove that lowering cholesterol with synthetic silver bullets can prevent cardiac fatalities. At the same time, they keep lowering their recommended optimal levels for cholesterol, to save lives, they say; but many believe this is really a ploy to increase drug sales that has actually *cost* lives. For example, the statin Lipitor® has made more money than any other silver bullet. On the Internet, one can learn how much money Lipitor® has earned for its makers since it debuted in 1996, but one cannot learn how many lives were lost or crippled due to these and other statins, some of which have already been taken off the market, despite FDA approval of these as safe and efficacious.

In response, attentive natural medicine enthusiasts have been coming up with safer herbal and food alternatives that can and do lower the bad LDL cholesterol and raise the good HDL cholesterol without causing Alzheimer's, cardiac fatalities, and rhabdomyolysis. Some of these are as follows: almond, black cumin, brown mustard, cinnamon, coriander, curry leaf, fenugreek, garlic, ginger, onion and onion peel, peanut, pecan, pistachio, pumpkin seed, roselle, sage, sesame, tamarind, tomato, tulsi, turmeric, walnut, and wasabi.

These days, it's not only Big Pharma fixating on triglycerides. Recently, even the American Heart Association (AHA) is targeting them. Many cardiologists do strongly imply that lowering triglycerides prevents the big killers, diabetes and heart disease. Much like the case of high cholesterol synthetic silver bullet marketing mentioned above, in the last decade Big Pharma has been striving to set lower industry optimal levels for triglycerides, hopefully to prevent more heart attacks. And again, natural medicine advocates speculate that Big Pharma's motives are more economically than altruistically driven.

So, allow me to complete the circle by naming some of the more important natural phytochemicals in herbs and foods bearing good evidence to safely lower triglycerides. In case the AHA and Big Pharma are correct in their assessment that lowering triglycerides will save lives, let me advocate saving lives with safer natural hypotriglyceridemics rather than synthetic hypotriglyceridemics in development.

Plant-based Hypotriglyceridemics

My hypotriglyceridemic list below includes many of the same "herbistatins" that also lower cholesterol. Among the culinary hypotriglyceridemics, the following may be viewed as promising, with garlic as numero uno, followed by: artichoke, avocado, capsicum, celery, fenugreek, green tea, onion, nutmeg, perilla, pigeon peas, sesame, tulsi, and turmeric. I can visualize several tasty, wholesome hypotriglyceridemic guacamole, salad, salsa, and soup recipes already!

Opposite: Some of the more familiar hypotriglyceridemic phytochemicals, their sources, and PubMed serial citations.

Phytochemical	*Plant source*	*PubMed ID*
Alliin	*Allium* spp.	21391887
Cinnamates	cinnamon	14585184
Dihydrocapsaicin	*Capsicum* spp.	2742510
Diosgenin (5-10 uM/l)	fenugreek, carrot, wild yam	21106928
Epicatechin 50-100 mg	green tea	22301923, 22735710
(-)-Epigallocatechin-3-O-gallate (ECGC)	green tea	19390166
Episesamin	sesame	9072406
Gallic acid	mango, witch hazel, pomegranate, marjoram, strawberry, rhubarb	17651054
Gluconapin	*Brassicaceae* family	20530888
Gluconasturtin	*Brassicaceae* family	20530888
Glycinin	soy	21936891
Glycyrrhizic acid	licorice	20670429
Hesperetin	citrus	18593176
4-hydroxyisoleucine	fenugreek	16246556
Inulin	chicory, dandelion, elecampane, Jerusalem artichoke	12571376
Gamma linolenic acid	borage, currant, evening primrose	22747885
Macelignan	nutmeg	18065517
Magnesium	all plants	15466951
Mangiferin	dodder, gentian, highest in *Anemarrhena aspheloides*	1558577, 15740886
Myricetin	widespread; carob, garlic, green tea, onion, hot pepper, blueberries, peas, eggplant, clove, etc.	17976658
Naringin	citrus	17201649
Niacin (Vitamin B3)	widespread in seeds	19915217, 22085343
Oleuropein	olive, privet	18823963
Gamma-oryzanol	rice	
Pectins	widespread	18433105
Phylloquinone (Vitamin K-1)	probably widespread	15354158
Pinitol	carob, scotch pine, soy, pea	18752266
Piperine	various black pepper relatives	21741367
Piperonaline	various black pepper relatives	21741367
Policosinol	sugar cane, yam	23018482
Polydatin	*Polygonum cuspidatum*	18657948
Resveratrol	blueberry, grape, peanut	22465220
Rutin	possibly ubiquitous	18217700
Tangeretin	citrus	21295043
Thujone	sage, wormwood, rosemary, mugwort, hyssop, lavender, savory	21988529
Tocotrienols	widespread with Vitamin E	20702976

I will continue to recommend plants such as the ones mentioned above that have evidence for lowering cholesterol or triglycerides, before trying a brand new synthetic silver bullet recently approved by the FDA. New drugs are often more expensive and rarely any better. I stridently maintain that natural phytochemicals, especially those with which our genes have coevolved for eons (millennia or more), are less likely to be toxic than synthetic derivatives with which our genes have had no experience. With genetically familiar natural chemicals, the body tries to maintain homeostasis, selecting and sequestering needed compounds in deficit, ignoring and voiding those compounds in excess. I now estimate that each plant species contains 5,000-10,000 biologically active phytochemicals recognizable by today's technologies. This number will increase as technologies improve. By contrast, the synthetic silver bullet usually contains a single targeted compound. Genetically familiar phytochemicals will have lots of useful side effects. By and large, the FDA-approved synthetic silver bullet usually has many *negative* side effects. Chances are good that it will be recalled in its first decade because of these.

Ask Your Doctor if You are Naïve Enough to Try the Synthetic Silver Bullet

Let me paint the picture of yet another pattern we are likely to see in the next few years: The FDA approves a new synthetic silver bullet (hereafter SSB) drug for lowering triglycerides. Then aggressive and manipulative Big Pharma reps flood receptive allopaths' offices with free samples of the SSB. TV, radio and magazines launch an ad blitz about the wonderful new SSB, telling millions of gullible nervous Americans to "Ask your doctor if SSB is right for you." Unsurprisingly, Americans ask their doctors! Then, the doctor gives a patient a four-week free trial sample, or maybe even prescribes it when the free samples are depleted. Ads get louder, and enumerate the potential side effects listed in the fine print. More and more Americans take the SSB. But so many take the SSB that many *new* side effects are reported to an already overloaded FDA. Within 10 years, odds are that the SSB will be recalled completely or relabeled with warnings that were not anticipated when the drug was first "proved safe and efficacious" by the FDA. Another SSB bites the dust after making millions for Big Pharma and killing and maiming unknown quantities of taxpaying Americans. Big Pharma moves on and targets a newly discovered substance with reported cardioprotective attributes. The cycle repeats.

Until plants are clinically compared with hypotriglyceridemic synthetic silver bullets, we do not know which are better. Wouldn't it be wonderful if a benevolent FDA would insist that the proposed new silver bullet be clinically compared with the more promising food "farmaceutical"? In an ideal world, the government would seek the best, cheapest and safest medicine. Regrettably, it will not happen in my lifetime. At present, there is no benevolent FDA; they still regard herbs as dangerous until proven to their standards as medicine. This 83 year-old botanist, aging fast, thinks like Hippocrates: First, do no harm, and let food be your medicine. Each food, plant, herb, or spice offers you thousands of biologically active phytochemicals. And if your ancestors ingested the herb long before you, chances are your body and your genes will recognize these phytochemicals, and your body will homeostatically grab those it needs to bring it from disease (unbalanced chemistry) to health (balanced chemistry). Better living through chemistry — natural chemistry!