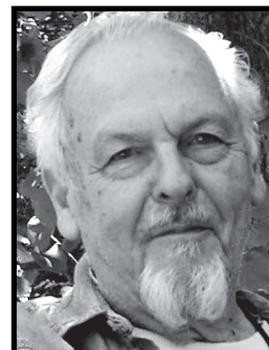


A Honey of a Defense against Viruses

James A. Duke, PhD



In his distinguished career, James Duke served the US Department of Agriculture for over 30 years. Before retiring, he developed his online ethnobotanical and phytochemical database. 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 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 (now Maryland University of Integrative Health). He has written over 30 books on medicinal plants.

Eeeeeek! Ebola, encephalomyocarditis, enterovirus, Epstein-Barr, equine rhinopneumonitis, all evidently evolving quicker than we do.

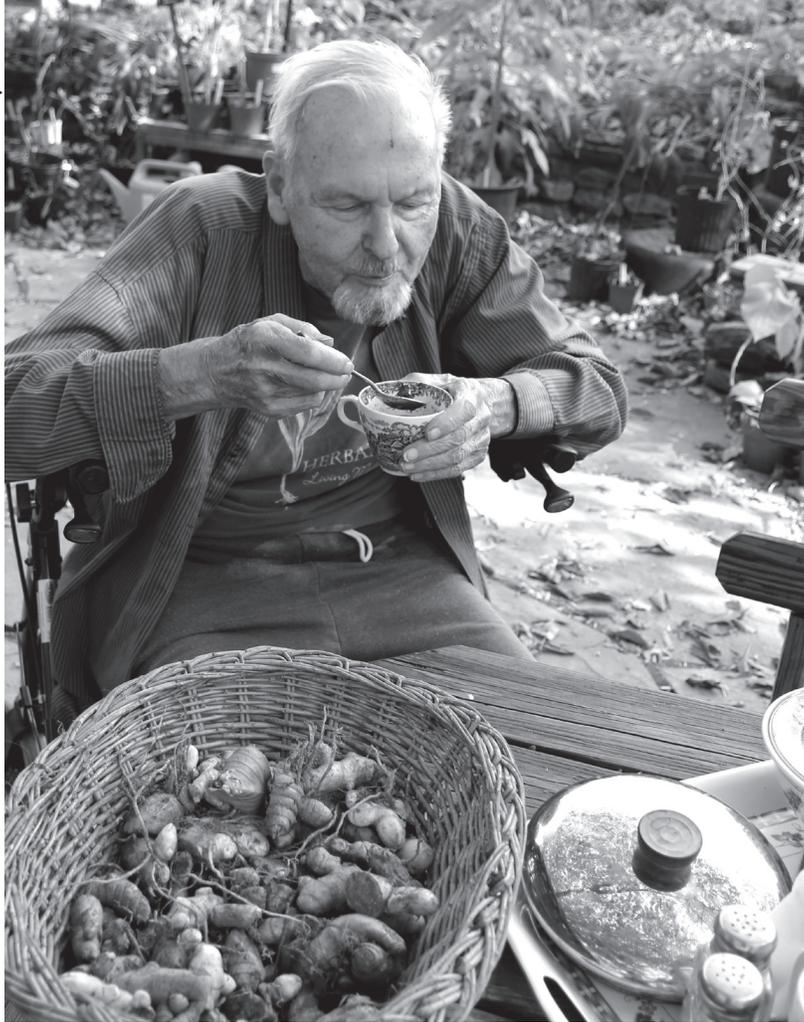
My treasured editors dislike the big words I use, or sometimes even invent, such as the one I use to describe myself: “vacciniphobe.” That is, someone who fears vaccines or vaccinations, including flu shots. (This is not to be confused with “vacciniaphobe,” which would mean someone who fears vaccinia, one of the many viruses that might confront us again via bioterrorism. According to Wikipedia, vaccinia belongs to the poxvirus family, which includes smallpox. Vaccinia virus is in the vaccine that wiped out smallpox under the World Health Organization’s Smallpox Eradication Program. Currently, due to concerns about smallpox being used as an agent for bioterrorism, there is renewed interest in vaccinia. So technically, I am both vacciniaphobe and vacciniphobe, and somewhat Ebolaphobe.)

On Oct. 24, 2014, I watched on the noon news as Dr. Anthony Fauci, infectious disease chief at the National Institutes of Health (NIH), proudly pronounced that nurse Nina Pham was “virus-free” as she was released from the hospital. I am rather sure he meant to declare her “Ebola-free,” not necessarily virus-free. Most of us know that we humans are 90% microbe, and only 10% human. Among those microbes, most are

bacteria, but there may well be several fungi, and probably quite an array of viruses. Probably 90% of us have a trace of Epstein-Barr virus, or have antibodies to it. And perhaps as many of us may have cytomegalovirus. So far, I have not found a source to tell me how much and how many viruses the healthy human houses. I’ll wager I have at least half a dozen right now (e.g., cold, enterovirus, flu, herpes, hepatitis, rhinovirus, and, from my earlier years, measles, mononucleosis, and mumps, maybe cowpox), though most do not have the upper hand at the moment.

In response to the current viriphobia, I have been rooting through our government-sponsored NIH PubMed journals, seeking published articles on viruses. I seek those PubMed citations dealing with herbs or phytochemicals that might help, significantly or trivially, in a viral epidemic. But we are not in a viral epidemic. We have been recently suffering what I irreligiously call “hysterical viriphobia,” fanned by the constant headlines in periodicals and on TV. I use that politically incorrect word “hysterical,” amused by the title of one article (in French) which translates to, ‘Coexistence of mass hysteria, konzo, and HTLV 1 virus’ (PubMed ID 10816753). The article tells me that Ebolaphobia might do more damage here than Ebola itself.

So what about our preoccupation with Ebola? Is there a food farmacy solution for this? Scientists at the University of Texas Health Science Center in San Antonio found that “the use of melatonin for the treatment of Ebola



Jim Duke samples his Viroxymel at the Green Pharmacy Garden in Fulton, Md. Photo by Helen Lowe Metzman.

virus infection is encouraged” (PubMed ID 25262626). They compare the symptoms of Ebola with those life-threatening symptoms of sepsis, which Mrs. Duke suffered three summers back. Those Texas scientists suggest that melatonin can target “endothelial disruption, disseminated intravascular coagulation, and multiple organ hemorrhage,” if that means anything to my readers. Doesn’t mean much to me. The good news (in case such positive reports on melatonin, which used to be as cheap as aspirin, cause a shortage) is that many common food plants contain melatonin. The bad news it is that the melatonin is at such low levels that I’d have to eat thrice my weight in rice to get a significant quantity of melatonin. I am an advocate of natural food pharmacy, but not in the case of melatonin.

Among all those vacuous “words of wisdom” from the Centers for Disease Control and Prevention (CDC) like “wash your hands” and “don’t touch doorknobs and elevator buttons,” it sure seems like the CDC has washed its hands of a natural approach to viruses. And with the new Ebola Czar, they talk of new synthetic, often GMO, vaccines which in some cases may prove more dangerous than the feared viruses themselves. You see, CDC and

Big Pharma, if not FDA, have concluded that there is no money to be made in using natural antiviral (or immune-boosting) chemicals in the foods our ancestors have long ingested, like elderberry, garlic, ginger, licorice, onion, persimmons, tea, turmeric, and even honey.

And it just so happens that all these ingredients are in my recipe for what I call my “Viroxymel.” The FDA might intimidate, interrogate or perhaps even incarcerate me, if I claimed that my Viroxymel cured Ebola or any other virus. I think it is scientifically accurate, based on PubMed citation abstracts, to say that my Viroxymel contains extracts of eight herbs (and honey) which can reduce or inhibit the development of viral infections.

Jim Duke’s Viroxymel

An oxymel is defined by the Free Dictionary as “a mixture of honey, water, vinegar, and spice, boiled to a syrup.” Well, I don’t boil my oxymels, which I use when the flu is going around. I add several diced antiviral spices to my honey, vinegar and water to make an antiviral oxymel, which I call “Viroxymel.” You can prepare it using your favorite method.

The first ingredient is **honey!** Yes, honey! Many published papers suggest that honey is antiviral, alone or in concert with some of the antiviral spices listed below. In 2014, Japanese scientists studied Manuka honey (which I have used to cure an ulcer on the front of both my ankles). The authors found that Manuka honey efficiently inhibited influenza virus replication and, in combination with synthetic pharmaceuticals zanamivir or oseltamivir, potentiated these nearly a thousandfold (PubMed ID 24880005). A Portuguese study suggested that “Água mel,” as a honey based product, was good for simple symptoms of the upper respiratory tract (PubMed ID 23422034). Manuka and clover honeys were antiviral against virus EC50. These researchers reported, “Honey is convenient for skin varicella zoster application, is readily available and inexpensive, honey may be an excellent remedy to treat zoster rash in developing countries, where antiviral drugs are expensive or not easily available” (PubMed ID 22822475). And there is plenty more research

supporting the use of honey to manage herpetic symptoms. Syrian scientists (1996) concluded that honey solutions were effective against rubella virus while thyme extracts were not (PubMed ID 9395668). Finally, Burdock (1998) and Rau et al (1992) add that propolis may have antibiotic, antifungal, antiinflammatory, antitumor, and antiviral properties (PubMed IDs 9651052 and 1423745). Beekeepers at the Green Farmacy Garden produced some honey here for the first time this year. And I have no reason to believe that our honey is inferior to Manuka, since our bees have a much greater variety of herbs to visit than the comparatively monotonous Manuka forests.

Those who sell **tea** (*Camellia sinensis*) may sell a little bit more to Ebolaphobes who study this PubMed abstract appearing in the journal *Antiviral Research*, cryptically entitled, “HSPA5 is an essential host factor for Ebola virus infection” (PubMed ID 25017472). The abstract does not even define what HSPA5 is, so I did some digging and found that HSPA5 is heat shock 70kDa protein 5 (glucose regulated protein, 78kDa). That doesn't help you or me much. All we need to know is that HSPA5 is necessary for Ebola to survive. This research comes from Fort Dietrick in Frederick, Md., where I enjoyed serving two of my military years, back in the 1950s. And then the good news! A common food contains a common compound with an uncommonly long name, epigallocatechin gallate (EGCG), which might lessen the likelihood of Ebola infection. Your tea leaves may contain up to 5% or more EGCG. Other NIH PubMed citations tell us that EGCG might help with other viruses including Epstein Barr, flu, herpes, hepatitis B & C, papilloma virus, and T Cell lymphocytic virus. EGCG is the first HSPA5 inhibitor I ever heard of from plants. Mark my word, eager investigators will soon start churning out research papers on other natural HSPA5 inhibitors in many of our food plants, herbs, medicinal plants and spices. Big Pharma will seek unnatural synthetic HSPA5 inhibitors our genes have never known. Some will be less dangerous than the virus; others will possibly be more dangerous, as science marches onward during these Ebolaphobic days.

Meanwhile, if you chew enough **garlic**

(*Allium sativum*), your garlic halitosis may discourage Ebola-bearing guests from getting too close. I'd rather eat an immune-boosting clove of garlic or enjoy my Viroxymel than take an immune-boosting flu vaccination. Garlic is not yet reported to work on Ebola, but it works on a lot of other viruses. Fresh garlic extract, rich in thiosulfinates, reportedly reduced herpes simplex virus type 1, herpes simplex virus type 2, parainfluenza virus type 3, vaccinia virus, vesicular stomatitis virus, and human rhinovirus type (PubMed ID 1470664).

If I were going to boil anything in my Viroxymel, it would be **onion** (*Allium cepa*) skin, apparently the cheapest and best source of quercetin (which may occur in all green plants; if so, all plants are at least trivially antiviral). PubMed contains numerous studies backing quercetin's activity against such viruses as adenovirus, influenza, herpes, HIV, HSV-2, and polio.

Elderberry (*Sambucus nigra*) has been proven to help control a lot of viruses in a lot of ways. Israeli scientists even clinically demonstrated its use on different strains of flu virus with the antineuramidase activity of the extract Sambucol (PubMed ID 9395631). They hinted it might possibly be of use in adenovirus and respiratory syncytial virus. More recently, Taiwanese scientists (2012) indicate that the antineuraminidase activity could slow Enterovirus 71, which commonly affects children (PubMed ID 22853823). Miami scientists showed that elderberry, green tea and cinnamon extracts rich in certain flavonoids also blocked HIV 1 entry and infection (PubMed ID 19641233). In 2004, Israeli scientists hinted at antiherpetic activity, while already reporting clinical efficacy of 15 mL of elderberry placebo syrup 4 times a day for 5 days that relieved flu symptoms an average of 4 days earlier (PubMed ID 15080016).

Turmeric (*Curcuma longa*) or its major active ingredient curcumin are active against CVB3, FHI, FIPV, flu, HBV, HCV, herpes, HIV, Japanese encephalitis, papilloma, parainfluenza, respiratory syncytial virus, and vesicular stomatitis virus.

Ginger (*Zingiber officinale*) tastes much better to me than turmeric, but does not have

nearly the antiviral reputation. Fresh ginger is effective against HRSV-induced plaque formation on airway epithelium (PubMed ID 23123794). Conversely, dry rhizomes show antirhinoviral activity, with several antirhinoviral sesquiterpenes, the most active being beta sesquiphellandrene (IC₅₀= 0.44 uM) (PubMed ID 8064299). Its essential oils can inhibit HSV 2 (herpes genitalis) at IC₅₀=0.004%. (PubMed ID 17976968). Ginger extracts inhibited hepatitis-C- proteases and cytomegalovirus protease (PubMed ID 16964717).

In addition to sweetening your tea or Viroxymel, **licorice** (*Glycyrrhiza glabra*) has a lot of antiviral activities, including against arbovirus, corona virus, flu, HBV, HCV, HIV, HSV, RSV, vaccinia and VSV (PubMed ID 17886224).

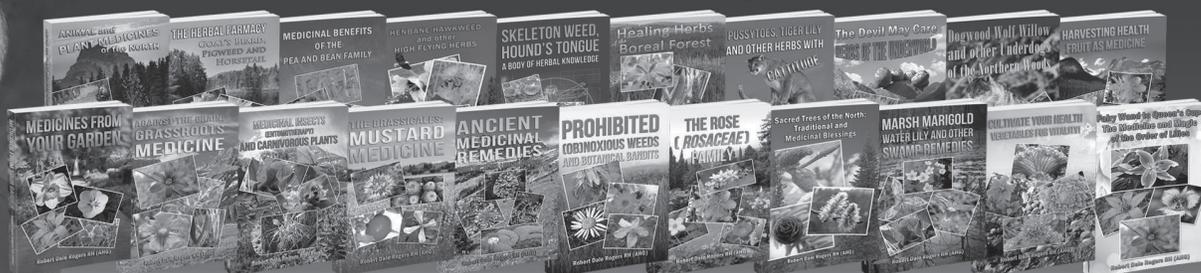
My readers may well know how puckery unripe **persimmons** (*Diospyros virginiana*) can be. That puckery effect is due to astringent tannins or polyphenols. Astringency might help in some hemorrhagic fevers, if not Ebola. It is this astringency that contributes to the antiviral properties of persimmons against a dozen viruses: adenovirus, coxsackie, feline calicivirus, H₃N₂ flu, H₅N₃ flu, herpes simplex, murine norovirus, Newcastle, polio, rotavirus, Sendai, and vesicular stomatitis (PubMed ID 23372851).

After consulting the NIH PubMed evidence, I suspect my Viroxymel is better for flu and several other viruses, if not Ebola, than what Big Pharma has to offer and CDC and FDA seem to champion. These three seem to have

written off the antiviral chemicals in plants (no money to be made there, they say; they can make more money damaging and even killing people with unnatural vaccines). I intend to finish off 2014 (and maybe even yours truly, too) compulsively compiling published natural antiviral chemicals in such wholesome herbs as the ones in my Viroxymel. There are many more, and they seem to be currently ignored by Big Pharma, CDC, and FDA, as they knowingly or unknowingly push their more dangerous and expensive alternatives, and too often unproven vaccines. We all need and deserve to know what is truly best to keep these viruses at bay. ■

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