



## TAHOMA CLINIC DISPENSARY

### **Bolster your memory, boost your brainpower, and fight Alzheimer's naturally!**

*by Dr. Jonathan V. Wright, MD*



Patent medicine companies have seen the enormous market (by some estimates, over 40% of us aged 85 or older) for Alzheimer's disease treatment, and have introduced several patent medicines, the best of which have only marginal effects. But of course prevention—not treatment—is always best, and patent medicines are notoriously poor at disease prevention.

Despite their poor track record, patent medicine companies are legally "allowed" by *los federales* to advertise their anti-Alzheimer's treatments, which—at a very high price—give virtually no results. Meanwhile *los federales* have literally made it illegal for companies selling much less expensive vitamins, minerals, and botanicals to tell the truth about solid scientific research concerning these products and Alzheimer's disease prevention.<sup>1,2,3</sup> How's that for "controlling the costs of health care"? Controlling costs upward...but that's a subject for another time.

Fortunately, it's still "legal" for me to tell you about scientific research, so let's take a look at just some of the research about natural substances and Alzheimer's disease prevention, as well as research about potential treatment.

Last month, you read the latest about lithium, focusing mostly on research reported since 2003. You read that lithium aids longevity, protects neurons, improves mitochondrial function, and very, very likely reduces risk of Alzheimer's disease. This month, let's take a look at sage (*Salvia* for the technically inclined), rosemary (*Rosmarinus*), curcumin (*Curcuma longa*), and take another quick look at niacinamide.

Sage, rosemary, and curcumin are most commonly known for their use for centuries—more likely millennia—in the kitchen. (If you're of the right age, you likely also remember sage and rosemary as part of the song title "*Parsley, Sage, Rosemary, and Thyme*".) However, sage, rosemary, and curcumin have been used in the

treatment of disease and improvement of health in many healing traditions throughout known history. They've all been particularly noted for effects on memory and mental abilities.

### Preserve your memories with sage

There are several "sub-species" of sage. The most common are *Salvia miltiorriza*, a form used in many Chinese medicines, *Salvia officinalis*, most commonly used in the West for medicinal and culinary uses, and *Salvia lavandulaefolia*, or Spanish sage.<sup>4</sup> (*Salvia divinorum* is another sub-species of sage found useful by shamans, but not researched as a memory-preserver or Alzheimer's preventer.)

The more common forms of sage listed above are frequently used to treat digestive disturbances, relieve colds and fevers, and as antibacterials and astringents. They can be used to relieve hot flashes in menopause, to reduce heavy menstrual bleeding, and to slow milk production during weaning.<sup>5</sup>

*Salvia officinalis* and *Salvia lavandulaefolia* have long had a reputation for improving memory and have exhibited some actions that may be useful in the prevention and treatment of Alzheimer's disease. Studies are being conducted to determine just how useful they are and what elements of the plants are responsible for their Alzheimer's fighting effects.<sup>6</sup>

In one example, *Salvia lavandulaefolia* has been shown to inhibit acetylcholinesterase—the enzyme that breaks down the major neurotransmitter acetylcholine—both outside of living organisms in a test tube or culture dish, as well as within living organisms (for the technically inclined, "in vitro and in vivo"). This is important to Alzheimer's research because inhibiting acetylcholinesterase is a major target of many patent medicine therapies used in the treatment of the disease. It's not yet known what components of sage are responsible for this effect. (For the technically inclined, it may be the essential oils and some of its monoterpenoid constituents.) And sage's benefits don't end with Alzheimer's prevention. Elements of sage have also been found to have anti-inflammatory, antioxidant, and estrogenic abilities (again, for the technically inclined, alpha- and beta-pinene, 1,8-cineole, thujone and geraniol.)

But as might be expected by anyone who studies how Nature works, (in contrast to patent medicines) a study assessing the actions of these monoterpenoid constituents found that no one element of the sage is more potent and that all of them may be working together (for the technically inclined, working synergistically) to achieve the anti-cholinesterase effects in the brain.

Spanish sage has also been found to calm the central nervous system, and may be helpful to Alzheimer's patients experiencing the agitation and mood disorders so common to the disease.

In one animal study, oral doses of essential oil from Spanish sage were found to inhibit acetylcholinesterase the major enzyme which breaks down the major neurotransmitter in two areas of the brain that are important to memory formation and cognitive function, functions which decline dramatically in Alzheimer's disease. (These areas are technically termed the striatal and hippocampal areas.) This essential oil also improved cognition in a human trial involving healthy volunteers. In another open-label trial in patients who already had Alzheimer's disease, improvement in attention span and reduction in neuropsychiatric symptoms were observed.

In another research project, this one a four-month placebo-controlled trial, 42 patients with mild to moderate Alzheimer's disease were given specific doses of *Salvia officinalis* extract (60 drops a day) over the course of 16 weeks and assessed for symptom relief. In those given the sage extract, a definite improvement was observed in cognitive function when compared to the group not receiving the herb. In addition, there appeared to be a reduction in agitation (a common symptom of Alzheimer's) experienced by the patients taking the Salvia oil.

When the active ingredients of leaves of *Salvia officinalis* were studied in rat cells (for the technically inclined, PC12 cells), toxicity from amyloid-beta peptide—one of the materials which accumulates to excess in the neurons of individuals with Alzheimer's disease—was reduced. Many other types of neuronal damage were reduced too. For the technically inclined these included lipid peroxidation, formation of reactive oxygen species, DNA fragmentation, caspase-4 activation, and tau protein hyperphosphorylation, all of which may contribute to the development of Alzheimer's disease. These data suggest that sage is likely neuroprotective in the treatment of Alzheimer's disease.

In yet another study of sage's effects on cognitive performance, 20 study volunteers over the age of 65 received extract of sage at one of four doses—167 milligrams, 333 milligrams, 666 milligrams, and 1332 milligrams, or a placebo—and then were assessed for response. The 333 milligrams dose showed the greatest benefit to “cognitive processing skills” (for the non-technically inclined, “thinking”) and “memory consolidation” as compared to the “ability to find stored memories” (for the non-technically inclined, “recollection” or “recall”). Attention accuracy was also improved.

### **Drive away dementia and brain damage with rosemary**

Rosemary, or *Rosmarinus officinalis*, is another commonly used kitchen herb. Traditionally the herb has been used as a mild diuretic for edema, to improve kidney function, and as a detoxifier. However, research shows that it may also be useful in the treatment of dementia and Alzheimer's disease.

One active ingredient is carnosic acid, which, like sage, may have neuroprotective benefits in the treatment of dementia and Alzheimer's disease. Studies suggest that the rosemary activates a pathway that protects neurons from oxidative stress and excitotoxicity (for the non-technically inclined, toxins which cause harm by significant overstimulation) and reduces damage from reactive oxygen species.

Unlike many other plant constituents and patent medicines carnosic acid crosses the “blood-brain barrier.” No harmful effects in the brain have been found. It also has the interesting property of being what is called a pathological-activated therapeutic or “PAT.” This type of naturally occurring therapeutic only activates when there is potential damage to the cell, such as when free radical damage is occurring. Otherwise, it is inactive when not needed, making it a very safe and well tolerated therapy. As one of the first substances that's been recognized for this unique ability to activate only when needed, it is on the leading edge of therapies that are safer and with fewer side effects.

Carnosic acid does two other things of significance for the brain. As we age the arteries to our brains narrow and carnosic acid helps prevent this, particularly in the left and right middle cerebral arteries. It also increases the body's levels of glutathione, which is an important antioxidant and detoxifier in many metabolic processes.

Rosemary has a reputation as a memory aid. Researchers are looking at it for its benefits in preventing cognitive decline. In one short-term randomized, double-blind, placebo-controlled study using dried rosemary leaf powder, 28 volunteers were assessed for the herb's impact on cognitive function. Study participants were given doses ranging from 750 to 6000 milligrams daily and assessed at regular intervals after receiving the herb. The most effective dose was 750 milligrams daily, closest to what a culinary intake might be, whereas the highest dose seemed to actually impair cognitive performance.

The aroma of rosemary's essential oil alone may be effective in improving mental function. When 20 healthy volunteers were exposed to the aroma of rosemary's essential oil containing 1,8-cineole, they performed better and with more speed and increased concentration on cognitive testing.

### Alleviate Alzheimer's symptoms with curcumin

Curcumin is the yellow-colored active ingredient in the Ayurvedic herb, turmeric. Several studies have shown it has potentially potent anticancer properties. Curcumin also has been found to have antioxidant, anti-inflammatory, antiviral, and antifungal actions.

Curcumin is prepared from the root (for the technically inclined, "rhizome") of the turmeric plant, which does not produce any seeds. Curcumin is used extensively in India, in many areas of which there is lower incidence of Alzheimer's disease than elsewhere in the world. Studies show that it is protective against damage caused by amyloid beta protein.

One study in an animal model found that it crossed the blood brain barrier where it bound to amyloid beta plaque and reduced overall beta-amyloid levels. It seems low doses of curcumin disaggregate (for the non-technically inclined, "pull apart") amyloid beta and reduce the formation of abnormal shapes and combinations (for the technically inclined, "fibril" and oligomer" formation) of beta-amyloid. (Many anti-Alzheimer's patent medicines are deliberately designed and being designed to reduce amyloid beta levels, and potentially reduce Alzheimer's symptoms.) Based on this study, researchers concluded that curcumin could prove to be even more beneficial when used in individuals who already have Alzheimer's disease with its abnormal beta-amyloid.<sup>18</sup>

UCLA researchers reported that curcumin might assist macrophages (large white blood cells which literally "eat" other cells and cellular debris) in reducing beta amyloid plaque burden in the body. In Alzheimer's disease, it's been observed that macrophages have an impaired ability to phagocytize (for the non-technically inclined, "eat") the toxic accumulations of beta amyloid plaque. So, in other words, the curcumin may give the macrophages just the boost they need to literally eat away at the toxic build up that's linked with Alzheimer's.

In one small study, blood was drawn from nine volunteers—six who had Alzheimer's disease and three healthy controls—and curcumin was added to the sample. The samples were then assessed for the ability of the macrophages to reduce the beta amyloid. There was a clear indication that in three of the Alzheimer's patient's blood samples, macrophages showed an increased ability to clear the plaque.

Curcumin is also a potent anti-inflammatory that has been shown to inhibit inflammation and reactive oxygen species, thereby lowering damage to neurons. (For the technically inclined, curcumin inhibits the expression of beta amyloid induced transcription factors Egr-1 and Egr-1.)

Curcumin has been found (in anti-cancer studies) to be well tolerated at doses ranging from 2000 to 8000 mg a day for three months with no adverse effects.

### **Treating Alzheimer's with niacinamide**

If you were reading *Nutrition & Healing* in March 2009, you may recall the exciting animal (mouse) Alzheimer's research done at the University of California at Irvine using niacinamide (also named "nicotinamide" in the UK) which—according to one of the researchers—found that "cognitively, [the mice] were cured. They performed as if they'd never developed the disease."

According to the abstract from the research report: "We evaluated the efficacy of nicotinamide...in...mice, and found that it restored cognitive deficits associated with [Alzheimer's disease]."24 After describing the biochemical and structural improvements observed in the mouse brain cells, the researchers concluded: "These preclinical findings suggest that oral nicotinamide may represent a safe treatment for Alzheimer's disease..."

In this research, niacinamide wasn't found to have an effect on the most common marker of Alzheimer's, beta-amyloid, but it did cause a 60 percent decrease in another "marker" of Alzheimer's disease, called "tau protein" (for the technically inclined, "Thr231-phospho-tau"). Too much tau protein is another characteristic of Alzheimer's disease.

Niacinamide, a form of vitamin B3 found naturally in many foods, was also associated with an increase in "microtubules," which carry information inside brain cells. "Microtubules are like highways inside cells. What we're doing with [niacinamide] is making a wider, more stable highway," one of the researchers said. "In Alzheimer's disease, this highway breaks down. We are preventing that from happening." So it's easy to understand why the researchers have been so enthusiastic about their findings.

Follow-up human research is underway in at least two locations, in California and the United Kingdom. In an interview given to *The Guardian*, one researcher remarked that niacinamide brought the mice "back to the level they'd be at if they didn't have the pathology. It actually improved behavior in non-demented animals too."

One of the California researchers said, "this suggests that not only is it good for Alzheimer's disease, but if normal people take it, some aspects of their memory might improve." While these researchers were focusing on actual treatment of an "animal model" of human Alzheimer's disease, it's my opinion, based on both published research and observation in practice, that niacinamide will ultimately be found useful in both prevention and treatment of Alzheimer's disease.

For other aspects of niacinamide treatment—including safety information—please see *Nutrition & Healing* for March 2009.

### **Sage Memories vs Alzheimer's**

You may have suspected that putting this review together with last month's discussion of lithium may have been going somewhere.

This month, you're right. Given all the research published so far, I've been looking for a product that combines lithium, sage, rosemary, curcumin, and niacinamide into one anti-Alzheimer's supplement. Unfortunately I

couldn't find one (more than a very small amount of the lithium component seems to hold many supplement companies back). So I asked Bio-Tech Pharmacal of Arkansas—which has made lithium supplementation available for over a decade—to put all these ingredients together in one formulation. This potentially powerful formula is designed not only for prevention but also as a potential treatment of Alzheimer's disease, especially the treatment of "early" Alzheimer's disease and cognitive decline. It's called "*Sage Memories*"; it contains 25 milligrams of lithium and 500 milligrams of niacinamide along with 650 milligrams of a combination of sage, rosemary, and curcumin, all in 4 capsules. (The curcumin is in a highly bio-available form called "Meriva®".)

*Sage Memories* is available from the Tahoma Clinic Dispensary ([www.tahomadispensary.com](http://www.tahomadispensary.com), 1-888-893-6878). Thanks to Ronald Steriti N.D. for collecting many of the research papers cited by this article, and to Lauren Russel, N.D., for arranging much of the factual material.

*You can get Sage Memories from the:*  
Tahoma Clinic Dispensary  
888-893-6878  
[www.tahomadispensary.com](http://www.tahomadispensary.com)

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