

Blueberry Powder Extends Life Span of Fruit Flies

This research was done in 2014 on our blueberry powder. It shows very positive effects on fruit fly life span (equivalent to 8 human years of extended life) because of a diet of our blueberry powder. You may be able to use this information at the show.

Linking the treating of neurodegenerative diseases with blueberries

By Kelly Foss | April 9, 2014



Blueberries are an excellent source of dietary antioxidants and may help prevent neurological disorders such as Parkinson's disease. (Photo credit: Todd Boland)

Can blueberry extract prevent or reduce the effects of Parkinson's? That's what researchers at Memorial are trying to figure out.

A new paper by David Lipsett and Dr. Brian Staveley of the Department of Biology suggests that a diet supplemented with blueberry extract may indeed have a positive impact on a fruit fly model of Parkinson's disease.

“Parkinson's disease is the second most common progressive neurodegenerative disorder and is only surpassed in frequency by Alzheimer's disease,” he said. “Initially believed to be an entirely sporadic disease, linkage studies have identified alpha-synuclein as the first gene related to Parkinson's.”

Alpha-synuclein is a protein abundant in the human brain, found mainly at the tips of nerve cells, or neurons, in specialized structures called pre-synaptic terminals. These terminals release chemical messengers called neurotransmitters, which relay signals between neurons and is critical for normal brain function.

Although the function of this gene is not well understood, studies suggest that it plays an important role in regulating the release of dopamine, a type of neurotransmitter critical for controlling the start and stop of voluntary and involuntary movements.

“This gene is proven to be the cause of inherited Parkinson’s disease in human families that have more of the gene, or an unusual form of it,” said Dr. Staveley. “We’ve taken that gene and put it in fruit flies and found that causes a few defects including decreased lifespan and retinal degeneration.”

Evidence also suggests those with an accumulation of the gene are more susceptible to oxidative stress, an imbalance between the production of free radicals, which can cause cell damage or death, and the ability of the body to counteract their harmful effects with antioxidants. Together the combination may play a pivotal role in the progression of Parkinson’s.

Given their versatility, fruit flies can help unravel the role of oxidative stress in Parkinson’s disease and unveil potential antioxidant therapies and blueberries’ therapeutic potential in cancer and vascular disease has already been studied. As well, new studies in fruit flies suggest that plant extracts may be beneficial to individuals suffering from neurodegenerative diseases.

During their study, Dr. Staveley noted that the flies with the gene that were fed blueberry extract had up to an eight-day, or 15 per cent, greater median lifespan than those fed a standard control diet. In addition, the extract improved the eye defects caused by the gene.

Eight days “might not seem like much,” says Dr. Staveley, but one day in a fly is equivalent to about one year in a human.

“If you have a disease and you’re given an extra eight years of life, you’d probably be pretty happy with that.”

Dr. Staveley is hoping to soon begin working with Whitbourne-based Sedna Nutra to evaluate some of their wild blueberry and cranberry nutraceutical supplemental extracts.

“Pharmaceutical product makers spend millions testing their products – they have to, it’s a chemical they made in a lab,” he explained. “Nutraceuticals don’t get that kind of testing because it’s already a food that does not require testing for approval. So, what you get instead is: ‘Eat this. It’s good for you.’ That’s great, but by approaching it from a scientific perspective we hope to be able to see exactly what a particular extract can do in fly models.”

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