

Study: A Sweet Anti-Aging Superfood?

Maple syrup may be a lot more than just a delicious topping for pancakes and waffles—it may also protect against Alzheimer's disease. Researchers from the University of Toronto discovered that an extract found in pure maple syrup prevents the misfolding and clumping of two types of proteins prominent in Alzheimer's and other neurodegenerative diseases.

"In preliminary laboratory-based Alzheimer's disease studies, phenolic-enriched extracts of maple syrup from Canada showed neuroprotective effects, similar to resveratrol, a compound found in red wine," said Dr. Navindra Seeram.

Some experts contend that pure maple syrup made directly from the sap of the maple tree is a singular product with unique health benefits.

"We already know that maple has more than 100 bioactive compounds, some of which have anti-inflammatory properties," says Serge Beaulieu, president of the Federation of Quebec Maple Syrup Producers. "Brain health is the latest topic of exploration."

The University of Toronto researchers showed that maple syrup prevented beta amyloid proteins from tangling and forming clumps, the plaques found in Alzheimer's brains. They also found the syrup produced a neuroprotective effect in the microglial brain cells of rats.

Microglial cells neutralize toxic substances in the brain and calm inflammation, and new research indicates that keeping them healthy helps prevent neurodegeneration and memory loss. In addition, the extract prolonged the life of an Alzheimer's roundworm.

Other studies have found that maple syrup may:

- **Fight inflammation.** A molecule in maple syrup called quebecol that occurs during the process of making maple syrup curbs the body's inflammatory response, a key characteristic of inflammatory disease such as rheumatoid arthritis.

Researchers at Quebec's Université Laval took a type of blood cells called macrophages and added bacterial compounds. Normally, this triggers an inflammatory response, but when the researchers added quebecol, the response didn't occur.

They have created synthetic versions of quebecol that are even more powerful than the original molecule. They believe the new versions could open the door to a new class of anti-inflammatory drugs that would be effective in treating immune diseases, such as arthritis, while reducing the side effects of current treatments.

- **Treat cancer.** A 2013 study published in *Bioorganic & Medicinal Chemical Letters* found that quebecol had effects similar to tamoxifen, a chemotherapy drug used to treat breast and other cancers. The researchers explained that tamoxifen had severe side effects whereas maple syrup shows no toxicity. They expressed hope that quebecol could be a way to fight cancer without the side effects of current treatments.
- **Combat harmful bacteria.** Researchers at Canada's McGill university created a concentrated extract of maple syrup that combats bacteria. The researchers tested the extract's effect in the laboratory on certain bacteria that cause infections, including *E. coli* and *Proteus mirabilis* (a common cause of urinary tract infection). By itself, the extract combated the bacteria, but it was even more effective when combined with antibiotics.

The extract also acted synergistically—creating a more

powerful effect by combining two substances—with antibiotics to destroy resistant communities of bacteria known as biofilms, which are common in difficult-to-treat infections, such as catheter-associated urinary tract infections. The research was published in the journal *Applied Environmental Microbiology*.

“The findings suggest a potentially simple and effective approach for reducing antibiotic usage,” said researcher Nathalie Tufenkji. “I could see maple syrup extract being incorporated eventually, for example, into the capsules of antibiotics.” {eoa}

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