

Green tea is good for the brain

Richard Béliveau

Translated from Le Journal de Montréal, July 17, 2017

A study recently confirmed that regular consumption of green tea decreases by half the risk of cognitive decline, even amongst people who are genetically predisposed to develop neurodegenerative diseases.

Green tea represents an exceptional source of polyphenols, molecules which can constitute nearly one third of the weight of the leaves of the tea plant (*Camellia sinensis*). The regular consumption of green tea is thus an excellent means of absorbing significant quantities of these biologically active molecules since a single cup of green tea can contain up to 200 mg of polyphenols, including epigallocatechin gallate (EGCG), the principal molecule responsible for the beneficial effects of green tea on health.

A recent study of the genetic material from tea indicates that the high level of polyphenols is the result of important modifications in the genes of the plant following its domestication several thousand years ago¹. Essentially, the role of polyphenols is to protect the plant from multiple aggressions originating in its environment (microorganisms, insects, ultraviolet light). By analyzing the entire genome of *Camellia sinensis*, a team of Chinese scientists has shown that the genes responsible for the production of these polyphenols have been “copy-pasted” multiple times over the course of the recent evolution of this plant, which has considerably increased the levels of polyphenols in its leaves and has thus allowed the plant to adapt to the different locations where it is cultivated.

CEREBRAL PROTECTION

While this increased content in polyphenols may be important for the tea plant, it is just as important for human health. Not only do polyphenols play an essential role in the taste of tea, because they convey the sense of bitterness, but these molecules also possess several biological activities which are very important in preventing chronic diseases.

One of the best documented benefits from the consumption of green tea is regarding the prevention of several types of cancers, particularly those of the mouth, colon and prostate (metastatic form of the disease). This preventive effect is primarily due to EGCG, with more than 11,000 scientific studies having shown that this polyvalent molecule is capable of interfering with a host of processes used by these cancerous cells to grow and to invade organs.

The positive effects of EGCG are not, however, limited to cancer. For example, several studies have shown that this molecule possesses several neuroprotective effects which could participate in



preventing neurodegenerative maladies such as Alzheimer’s disease and Parkinson’s disease. This is particularly well illustrated by the results of one population study performed with nearly 1,000 subjects living in Singapore who were aged 55 and older².

By analyzing their habits regarding tea consumption, the researchers observed that the people who regularly consumed tea saw their risk of experiencing a decline in cognitive function reduced by 50% compared to those who either never consumed tea or did so rarely. This diminished risk is particularly striking for individuals who possessed one copy of the gene APOE ε4, who are thus genetically at higher risk of developing Alzheimer’s disease, with a spectacular reduction of 85%. Stunningly, the protection provided by tea seems to be much more pronounced for women.

These results show once more the extent to which our lifestyle exerts an enormous effect on our health, both physical and mental. The deterioration of cognitive functions associated with aging is not an inevitable phenomenon, against which we can do nothing. The consumption of plants which contain high quantities of antioxidant and anti-inflammatory molecules, such as green tea, cacao, curcuma or even berries, can participate in diminishing this risk of cognitive decline, particularly if it is part of a lifestyle that is made robustly healthy by including regular physical exercise and the maintenance of a healthy body weight.

- (1) Xia E-H et al. The tea tree genome provides insights into tea flavor and independent evolution of caffeine biosynthesis. *Molecular Plant*, published online May 1 2017.
- (2) Feng L et al. Tea consumption reduces the incidence of neurocognitive disorders: findings from the Singapore longitudinal aging study. *J. Nutr. Health Aging* 2016;20:1002-1009.