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Tea Could Improve Memory, Study Shows

Dr. Ed Okello with teapot and cup. (Photo courtesy of University Of Newcastle Upon Tyne)

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Drinking regular cups of tea could help improve your memory, suggest researchers who are investigating alternative forms of treatment for Alzheimer's Disease.

Results of laboratory tests by a team from the University of Newcastle upon Tyne found that green and black tea inhibit the activity of certain enzymes in the brain which are associated with memory.

The findings, which are published in the academic journal, Phytotherapy Research, may lead to the development of a new treatment for a form of dementia which affects an estimated ten million people worldwide, Alzheimer’s Disease.

For their experiment, the research team, from Newcastle University’s Medicinal Plant Research Centre, investigated the properties of coffee and green and black tea in a series of scientific experiments. Black tea – traditional English breakfast tea – is derived from the same plant as green tea, Camellia sinensis, but has a different taste and appearance because it is fermented.

They found that both green and black tea inhibited the activity of enzymes associated with the development of Alzheimer's Disease, but coffee had no significant effect.

Both teas inhibited the activity of the enzyme acetylcholinesterase (AChE), which breaks down the chemical messenger or neurotransmitter, acetylcholine. Alzheimer's is characterised by a drop in acetylcholine.

Green tea and black tea also hinder the activity of the enzyme butyrylcholinesterase (BuChE), which has been discovered in protein deposits which are found on the brain of patients with Alzheimer's.

Green tea went one step further in that it obstructed the activity of beta-secretase, which plays a role in the production of protein deposits in the brain which are associated with Alzheimer's disease. Scientists also found that it continued to have its inhibitive effect for a week, whereas black tea's enzyme-inhibiting properties lasted for only one day.

There is no cure for Alzheimer's but it is possible to slow the development of the disease. Drugs currently on the market hinder the activity of AChE, and others are being developed which scientists hope will inhibit the activity of BuChE and beta-secretase.

However, many of the drugs currently available, such as donepezil, have unpleasant side effects and the medical profession is keen to find alternatives.

The Newcastle University researchers are now seeking funding to carry out further tests on green tea, which they hope will include clinical trials. Their aim is to work towards the development of a medicinal tea which is specifically aimed at Alzheimer's sufferers.

The next step is to find out exactly which components of green tea inhibit the activity of the enzymes AChE, BuChE and beta-secretase.

Lead researcher, Dr Ed Okello (pictured), who is also a lecturer with Newcastle University's School of Biology, said: "Although there is no cure for Alzheimer's, tea could potentially be another weapon in the armoury which is used to treat this disease and slow down its development. It would be wonderful if our work could help improve the quality of life for millions of sufferers and their carers.

"Our findings are particularly exciting as tea is already a very popular drink, it is inexpensive, and there do not seem to be any adverse side effects when it is consumed. Still, we expect it will be several years until we are able to produce anything marketable."

Dr Okello, himself a green tea drinker, said the findings of the research suggested tea could boost the memory of everyday drinkers: "The ageing politician, Tony Benn, is a prime example of somebody who drinks tea and has a fantastic memory. He is said to drink 18 pints a day and has a very sharp mind for a man of his age," he added.

Prof Clive Ballard, director of research, Alzheimer's Society, said: "This interesting research builds on previous evidence that suggests that green tea may be beneficial due to anti-oxidant properties. Certainly the effect on the cholinesterase enzyme (the target of current anti-dementia drugs such as Aricept) and beta-secretase (an enzyme which is important in the build up of plaques) is very exciting and requires further investigation."

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USEFUL WEB LINKS :

Newcastle University, Medicinal Plant Research Centre : http://www.ncl.ac.uk/medplant/

For facts and figures relating to tea, go to the Tea Council website at: http://www.tea.co.uk/tAndYou/index.htm

For facts and figures on dementia, go to the Alzheimer's Society website:

http://www.alzheimers.org.uk/News_and_Campaigns/Press_Releases/mediaquickfacts.htm

STORY SOURCE AND JOURNAL REF: 'In vitro Anti-beta-secretase and dual anti-cholinesterase activities of Camellia sinensis L. (tea) relevant to treatment of dementia'; Edward J Okello et al, Phytotherapy Research, 18 624-627 (2004)

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