Medical Xpress

Understanding the beneficial effects of green tea and apples to produce health-promoting polyphenols

November 4 2015

Dietary studies have consistently shown that people who eat large amounts of fruit and vegetables have a reduced risk of developing chronic conditions such as heart disease and cancer. Now researchers working on the BACCHUS project have shown exactly how. Naturally occurring compounds – called polyphenols – in green tea and apples block signalling molecules called VEGFs, which can trigger atherosclerosis (plaque build-up inside the arteries). Atherosclerotic plaques and plaque rupture can cause heart attacks and stroke.

Cardiovascular disease is the leading cause of morbidity and mortality in Europe, and easily measured risk factors (such as blood pressure and cholesterol) are targets for international health programmes. Growing

interest in – and consumption of – polyphenols, which have been shown to exert beneficial health effects, represents a field of significant potential for the food, supplements and even pharmaceutical industries.

Using cells derived from human blood vessels, the researchers found that low concentrations of certain polyphenols from green tea and apples can inhibit VEGF signalling. For the first time, the BACCHUS team was able to show that polyphenols can block these molecules at levels you would see in the bloodstream after eating polyphenol-rich foods. The researchers also unexpectedly noted that polyphenols activate another enzyme signalling system that generates nitric oxide in the blood, which helps widen blood vessels and prevent damage.

Researchers have also analysed the release of amino acids during the dry curing of meats. They discovered that some peptides actually cause arteries to relax, reducing blood pressure and the further development of atherosclerosis.

From this research, the four-year BACCHUS project, which began in October 2012, has developed a better understanding of bioactive substances found in foods that are common in European diets. Tools have since been developed, which will enable European companies to fully exploit the health properties of polyphenols and thus pass on these benefits to consumers.

So far, the toolkit includes an e-Learning platform, designed to disseminate project research and information to partners including SMEs and the general public. Best practice guidelines for health claims dossiers have also been developed. The aim is that these documents will be a useful resource for those hoping to gain approval for a health claim on a product. As part of these best practice guidelines, guidance will be provided for human dietary intervention study design, specific to the category of health claim sought.

A user-friendly, efficient and flexible interface has also been developed to help researchers search and extract data from the eBASIS database. This internationally recognised resource provides up-to-date validated scientific information on the composition and health benefits of bioactive compounds in foods.

The new interface will also enable researchers to assess foods and bioactive compound intakes of adults in the UK, Ireland and Spain, to determine whether quantities of foods or compounds required for the claimed effect are realistically achievable within current dietary habits.

The BACCHUS research team will continue to publish its research in peer-reviewed scientific journals as well as presenting its work at scientific congresses. The project is due for completion in September 2016.

More information: For further information please visit the BACCHUS project website: www.bacchus-fp7.eu/

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