Good Food, Good Life

Nestlé Investigates the Health-promoting Polyphenols in Chocolate

Lausanne, SWITZERLAND 3 April 2007 - In the April edition of Journal of Agricultural and Food Chemistry, a research team from the Nestlé Research Center (Lausanne, Switzerland) reports on the amount of the major cocoa polyphenols in a range of chocolate from different sources. A survey of 68 chocolate samples from different manufacturers around the world show great variation in polyphenol content (the range found of epicatechin content was 0.071 – 1.942 mg/g chocolate). The full contribution is available on the Journal of Agriculture and Food Chemistry internet site.

Polyphenols are powerful antioxidants shown to positively affect arterial function, blood pressure, cholesterol levels, insulin sensitivity and oxidative stress. Human trials using Nestlé chocolate have found it to be beneficial for health, for example, 40g of Nestlé Noir improved endothelial function two hours after eating the chocolate, and this effect was still apparent after eight hours (Hermann et al, 2006, Heart 92, pp 119-20). The same study also found improvements in platelet function and plasma antioxidant status. A second study using Nestlé Noir revealed an improved arterial function in healthy people, with increases in artery diameter and flow mediated dilation (Vlachopoulos et al, 2005 Am J Hypertens 18, pp 785-91).

The current article describes a new, fast chromatographic method to separate and quantify, in three minutes, six of the major cocoa polyphenols. The relative amounts of individual polyphenols, except catechin, remain essentially constant and closely correlated with the predominant epicatechin. Further chiral analysis revealed that (+)-catechin was strongly correlated to epicatechin content, and the (-)-catechin enantiomer was not. Epicatechin appears to be an excellent indicator for total polyphenol quality and quantity, with (-)-catechin being the main form of polyphenol that varies with cocoa origin and manufacturing conditions. This innovation adds a new dimension to the methods used to ensure the consistent high quality and quantity of cocoa polyphenols in Nestlé chocolate.

The present study on cocoa polyphenols is also a good example of the work carried out to provide the solid scientific foundation for Nestlé to support product claims and to communicate the health and wellness benefits of Nestlé products.

Article Reference:

Rapid Reversed Phase Ultra-Performance Liquid Chromatography Analysis of the Major Cocoa Polyphenols and Inter-relationships of Their Concentrations in Chocolate. Karen A. Cooper, Esther Campos-Giménez, Diego Jiménez Alvarez, Kornél Nagy, Jennifer L. Donovan, and Gary Williamson. J. Agric. Food Chem.; 2007.

About the Nestlé Research Center

Established in 1987, the Nestlé Research Center (NRC), Lausanne, Switzerland, is one of the world's leading research institutions in food, nutrition and life sciences. With a diverse staff of leading researchers from a broad range of scientific competencies, NRC possesses a unique blend of talent and expertise. Knowledge on nutrition and health, food science, food/consumer interaction and food quality and safety are combined at the Nestlé Research Center to help develop Good Food as a source of Good Health throughout life.

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