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FIE 2005: Launch of new chocolates rich in healthy polyphenols Barry Callebaut confirms the power of polyphenols in chocolate

Paris/France, November 29, 2005 – Polyphenols (i.e. natural components found in plants, such as fruit, vegetables, black and green tea, and red wine) are well known for their potential health benefits. Less well known is the fact that cocoa contains four times the amount of polyphenols as tea and twice as much as red wine. Barry Callebaut has conducted thorough research in the development and production of chocolate rich in polyphenols. At a press conference today at the FIE Food Ingredients Europe trade fair in Paris, France, Barry Callebaut presented findings of their studies on polyphenols and their positive effect on cognitive functions and diseases such as prostate cancer.

Polyphenols in cocoa

The polyphenols found in cocoa belong to the category of flavonoids. Flavonoids can be broken down into sub-groups, one of which – the flavanols – are particularly abundant in cocoa beans. Cocoa contains four times the amount of flavanols as tea and twice the amount of flavanols as red wine. In addition, cocoa contains unusually large amounts of more complex flavanols, the so-called procyanidins. Research indicates that these complex flavanols can act as powerful antioxidants protecting body cells against the damaging effect of free radicals. According to recent research, free radicals accelerate the ageing process and are responsible for the degeneration of certain body functions (such as the ability to see, the nervous system). Flavonoids may have a positive influence on cardiovascular events such as heart attack and thrombosis. They appear to have other properties that promise added health benefits, including positive effects on blood platelets, the blood vessel walls and the immune system. This is why dieticians recommend a diet that is rich in polyphenols.

The first research results from the research team headed by the Barry Callebaut experts Dirk Poelman (Chief Operations Officer and head of Fundamental Research & Development) and Philippe Troplin (head of Cocoa Research & Development) confirm the health benefits of polyphenols and the preventive effect of polyphenols against cancer (for instance prostate cancer). Furthermore, the study results indicate additional positive benefits of polyphenols: In animal experiments they had a positive impact on memory function and the ability to learn.

Polyphenols inhibit in-vitro growth of cancer cells

In an in-vitro study, BIOalternatives⁽¹⁾ in Gençay, France, one of the independent research institutes commissioned by Barry Callebaut, examined the effect of polyphenols from cocoa beans on the growth of human prostate cancer cells and human prostate normal cells. Results suggest that polyphenols inhibit the growth of prostate cancer cells.

Guillaume Tenca, Business Development Director of BIOalternatives, explains: *“Being a natural product, the cocoa contains many different types of physiologically active components. Research shows that the cocoa bean and tasty products derived from the cocoa bean such as chocolate, are rich in specific antioxidants such as polyphenols, flavonoids*



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and especially catechins, epicatechins and proanthocyanidins. In the present study, we have examined the effects of different extracts of polyphenols from cocoa, which came from different countries, on the growth of human prostate cancer cells (DU145 and 22Rv1 cells) and human prostate normal cells (RWEP-1 cells). We have performed our experiments in a dose-dependent manner for RWEP-1 and 22Rv1 cells and in a dose-, time-dependent manner for DU145 cells by using cytotoxicity assays. Our results indicate that some polyphenols from specific countries decrease cell proliferation in a dose-, time-dependent manner and other polyphenols inhibit cell growth in a dose-dependent manner. Origin of polyphenols is an important factor for efficiency of these compounds. Furthermore, extract of cocoa tested are more efficient on androgen-responsive cells (22Rv1 cells) rather than on androgen non-responsive cells (DU145 cells). This result suggests an interaction between polyphenols and intracellular steroid receptors. Our results suggest that polyphenols have an anti-proliferative effect on prostate cancer cell growth.”

Polyphenols have a positive impact on cognitive abilities

Another study, conducted by the independent research institute CogState Ltd. ⁽²⁾ in Melbourne, Australia, measured the impact of polyphenols on cognitive functions (i.e. decision making, problem solving, psychomotor function, learning and memory).

There is good evidence from animal and human studies that polyphenols may enhance cognitive performance. Barry Callebaut studies will be the first to address the effect of cocoa polyphenols.

Dr Collie, Senior Clinical Scientist, CogState Ltd (UK), said: *“There is good scientific evidence that long-term consumption of polyphenols will have positive effects on cognitive functions. For instance, we know that 8 weeks dietary supplementation with polyphenol-rich food improves the performance of rats on memory tests by as much as 50%. We are now studying the cognition of humans to confirm this theory,”* he added.

Barry Callebaut develops process for the preservation of valuable polyphenols in cocoa beans

Dirk Poelman, Chief Operations Officer and head of Fundamental R&D at Barry Callebaut said: *“Through extensive research of the complete process from the cocoa bean to the finished chocolate, Barry Callebaut succeeded in developing a special production method. The ACTICOA™ process preserves the original high levels of active polyphenols in cocoa,*

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⁽²⁾ CogState Ltd.

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which are often lost during normal cocoa and chocolate processing. The ACTICOA™ process covers several processing stages, from harvesting through the processing of cocoa beans to the chocolate product. Besides preserving the health promoting effects of the cocoa polyphenols, the ACTICOA™ process results in an excellent chocolate taste. The positive health effects of cocoa polyphenols have been scientifically proven in collaboration with universities and hospitals.”

With the innovative ACTICOA™ process, Barry Callebaut is able to produce chocolate products richer in polyphenols than was ever possible. And hereby the positive effects on the body and the authentic taste of the chocolate are preserved. The use of the ACTICOA™ chocolate is identical to the use of traditional Barry Callebaut chocolates.

The power of dark chocolate

Barry Callebaut launches dark chocolate using the ACTICOA™ process. These chocolates vary from 50% to more than 70% cocoa solids having a higher polyphenol content than other similar chocolates on the market. They fully meet the taste expectations of the consumer, who wants to eat naturally and healthy, but considers chocolate mainly as a ‘feel good’ product, a delicacy and indulgence. Barry Callebaut chocolate guarantees a minimum of 3.2% of polyphenol content.

Milk chocolate plus

Beside dark chocolates, Barry Callebaut also produces milk chocolate with polyphenols. Milk chocolate is anyhow a source of calcium and proteins (100 grams of milk chocolate contain 20-40% of the daily recommended amount of calcium). According to scientists it will even play a prominent role in flavoring milk products in the future, because of the decrease of milk consumption by the young. The high level of polyphenols can only have a positive effect here. Barry Callebaut milk chocolate guarantees a minimum of 1.1 % of polyphenol content.

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Barry Callebaut (www.barry-callebaut.com):

With annual sales of more than CHF 4 billion for fiscal year 2004/05, Zurich-based Barry Callebaut is the world’s leading manufacturer of high-quality cocoa, chocolate and confectionery products – from the cocoa bean to the finished product on the store shelf. Barry Callebaut operates more than 30 production facilities in 23 countries and employs more than 8,000 people. The company serves the entire food industry, from food manufacturers to professional users of chocolate (such as chocolatiers, pastry chefs or bakers), to global retailers. It also provides a comprehensive range of services in the fields of product development, processing, training and marketing.

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