



# News release

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**Barry Callebaut researches effectiveness of polyphenols in cocoa beans**

## **Studies reveal new findings on the health benefits of polyphenols from cocoa beans**

- **Barry Callebaut presents new studies on the effect of polyphenols from cocoa beans**
- **Results point not only to health-enhancing properties with cancers but also to a positive impact on brain functions (memory/ability to learn) and anti-aging effects**

*Zurich/Switzerland, April 11, 2005* – Barry Callebaut AG, the world's leading manufacturer of high-quality cocoa and chocolate products, headquartered in Switzerland, has set itself the task of conducting more research into the positive health effects of polyphenols from cocoa beans. To this end the company has launched an extensive study program and implemented the first phase in close cooperation with renowned independent research institutes<sup>1</sup> in France. For many years the world of science has been intensively researching the health benefits of polyphenols. In a large number of studies it was possible to show that due to their antioxidant properties these substances have a preventive effect in the body vis-à-vis cardiovascular disease and cancers. Cocoa is particularly rich in polyphenols. Reason enough for Barry Callebaut to become more involved with this subject matter. The first results from the research team headed by the Barry Callebaut experts Dirk Poelman (head of Fundamental Research & Development) and Philippe Troplin (head of Cocoa Research & Development) confirm the preventive effect of polyphenols against cancers. 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. Whether polyphenols also have the same effect in the human body is to be studied in the course of further research.

### **Protection of cells from free radicals**

Polyphenols are natural ingredients in vegetables and fruits. Their antioxidant effect has been known for many years. Cocoa beans, and thus primarily also dark chocolate, contain particularly large amounts of this secondary plant substance. They assist the body's cells in combating free radicals, which can cause cell damage. For this reason their health-enhancing properties are manifold. The study and evaluation of scientific literature from 1980 to 2005 provided a number of references to the health benefits of polyphenols with cardio-vascular disease, cancers and the functioning of the immune system.

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<sup>1</sup> IN CYTOTOX, Laboratory of Experimental Cancerology, France /  
ETAP-Ethologie Appliquée, Centre d'Etudes et de Recherches an Pharmacologie, Cancérologie et  
Nutrition-Santé, France



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## **Polyphenols stem in-vitro growth of cancer cells**

In an in-vitro study, IN CYTOTOX, one of the independent research institutes commissioned by Barry Callebaut, examined the effect of polyphenols from cocoa beans on the growth of human local prostate cancer cells and on metastatic cells. As a comparison they tested the efficacy of a further substance of vegetable origin ( $\beta$ -sitosterol), which is known for its ability to inhibit cancers. The result: Polyphenols from cocoa beans inhibit in-vitro growth of cancer cells – even stopping growth altogether. This effect was also observed to a lesser degree with the metastatic cells. In comparison with  $\beta$ -sitosterol, polyphenols demonstrate a more convincing effect in stemming cell growth: They require less time for the same effect.

Researchers were also able to demonstrate that cocoa polyphenols have no negative impact on normal, healthy cells.

## **Further effects of polyphenols: Improvement in performance and anti-aging effects**

Further findings on the effect of polyphenols are being acquired by the researchers from a two-part study currently being conducted on live male rats. Over a period of three to fifteen months – the average lifespan of a rat is approx. eighteen months – an independent research team from ETAP is examining whether polyphenols also have a positive impact on brain functions, in addition to their anti-carcinogenic properties.

The first part of the study has been concluded, revealing that polyphenols from cocoa beans can also exercise their antioxidant effect on cognitive functions. In rats they combat memory loss and promote the ability to learn. Furthermore, the results lead researchers to believe that polyphenols also display anti-aging effects. This second part of the study has not yet been concluded; more in-depth studies are intended to expand on the findings on the newly-discovered effects of polyphenols.

The declared objective of Barry Callebaut is that of examining in further research projects whether the findings on the health-enhancing properties of polyphenols from cocoa beans may be transferred to humans.

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### **Barry Callebaut ([www.barry-callebaut.com](http://www.barry-callebaut.com)):**

*With annual sales of more than CHF 4 billion for fiscal year 2003/04, 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 22 countries and employs approx. 8,700 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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## Glossary

**Antioxidants:** Substances, which protect molecules against oxidation by emitting electrons or accepting a hydrogen atom without themselves being converted into reactive molecules.

**$\beta$ -sitosterol:** The most important *plant sterol* in vegetable oils in terms of volume.

**Free radicals:** Extremely reactive molecules with unpaired electrons. They develop in the body in the course of physiological reactions or through damaging external influences (e.g. from UV radiation and X-rays). Can cause cell damage.

**In vitro** (Latin): “In a test tube”, i.e. an experiment outside a living organism.

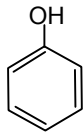
**In vivo** (Latin): “In life”, in a living organism.

**Carcinogenic** (Latin, Gr.): Causes cancer.

**Cardiovascular** (Latin, Gr.): Concerning the heart and blood vessels.

**Plant sterols:** Are very similar in their chemical composition to the animal *sterols* such as cholesterol. They are counted among the *secondary plant compounds*.

**Polyphenols:** A group of *secondary plant compounds*, present as natural substances in vegetable foods. All polyphenols are based on a common basic chemical substance, phenol (see illus.). As *antioxidants* polyphenols intercept *free radicals*.



**Secondary plant compounds:** Also known as phytochemicals. Widely differing compounds formed by plants. There are estimated to be as many as 100,000 different such substances. In contrast to primary plant compounds (carbohydrates, proteins, fats) they only occur in small amounts and have health-giving properties.

**Sterols,** physiologically these are regarded as fats, and are found in all biological systems.

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## Sources

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