

## New insights into coumarin contained in cinnamon

BfR opinion No. 036/2012, 27 September 2012\*

The Federal Institute for Risk Assessment (BfR) has updated its opinion dated 16 June 2006 on coumarin on the basis of new data. Over the last few years new insights, especially on bioavailability and exposure, have been gained. The new European limit values in effect since January 2011 still applies to coumarin in certain ready-to-eat foods.

The assessment of the danger potential of coumarin has not changed. The tolerable daily intake value (TDI) of 0.1 mg per kg of body weight which can be consumed every day throughout one's life without any adverse health effects continues to apply. With its human biokinetic study (Abraham et al., 2011), the BfR has shown that coumarin is also well absorbed by the body from the plant matrix of cinnamon. The TDI value which was derived from data with isolated coumarin can therefore also be applied to coumarin in cinnamon-containing foods.

In Since 2011, new limit values for coumarin in ready-to-eat foods have been in effect within the European Union (EU). Even where the maximum of these new EU limit values is reached, exceeding the TDI value is possible only, if large quantities of cinnamon-containing foods are consumed on a daily basis. For small children with a body weight of 15 kg, the maximum TDI value would be reached if they ate 30g of cinnamon stars (i.e. about 6 small cinnamon stars) or 100 g of gingerbread per day.

For cinnamon sticks and cinnamon powder as a spice for household use, no limit values have been defined, however. If an average coumarin content in Cassia cinnamon of 3000 mg per kilogram of cinnamon is assumed, the TDI value can be exceeded by consumers who eat a great deal of Cassia cinnamon. For an adult with a body weight of 60 kg, the TDI value is reached, if 2 g of Cassia cinnamon are consumed per day. For an infant with a body weight of 15 kg, this is the case if 0.5 of Cassia cinnamon are consumed per day. Overall exposure can be increased by other sources, for example coumarin-containing cosmetics. Consumers who frequently and regularly eat cinnamon-containing foods should be aware of this. The BfR still recommends that Cassia cinnamon is consumed in moderation. Consumers frequently using large quantities of cinnamon as a condiment should therefore opt for the low-coumarin Ceylon cinnamon.

The full version of this BfR Opinion is available in German on <http://www.bfr.bund.de/cm/343/neue-erkenntnisse-zu-coumarin-in-zimt.pdf>

\* This opinion replaces BfR opinion No. 043/2006 from 16 June 2006. Having conducted its own research, the BfR has gained scientific insights into the bioavailability of coumarin from the food matrix of cinnamon. In addition, the European Commission has redefined the limit values for coumarin in ready-to-eat foods.