



STEVIOL GLYCOSIDES

DESCRIPTION¹

Steviol glycosides (INS 960) are natural, sweet tasting constituents of *Stevia rebaudiana* a plant native to South America, belonging to the *Compositae* family. Steviol glycoside preparations are obtained by hot-water extraction from the leaves of the plant, followed by further concentration, purification and (usually) spray-drying.

Composition and taste profile of the extracts depend on the content of Steviol glycosides in the leaves, influenced by the genotype of the plant, by soil and climate, and by the process of extraction and purification, and thus may vary to a considerable extent.

Dried extracts are white to slightly yellowish, crystalline, odourless to having a slight characteristic odour, water-soluble powders. Unless purified and standardised to well defined standards and specifications, Steviol glycoside preparations usually contain as the major components the glycosides Stevioside (CAS N° 57817-89-7) and Rebaudioside A (CAS N° 58543-16-1), in various amounts, along with smaller amounts of other Steviol glycosides, such as Rebaudiosides B and C, Dulcoside A, Rubusoside and Steviolbioside.

RELATIVE SWEETNESS

Steviol glycoside preparations (min. 95% Steviol glycosides) are approximately 200 to 300 times sweeter than sucrose.

METABOLISM

Steviol glycosides are broken down to steviol in the gut. Steviol is excreted in the urine as steviol glucuronide.

APPLICATIONS

Depending on regulations and approval status Steviol glycoside preparations may find broad applications as a sweetener in various categories of foods and beverages and in tabletop sweeteners, as Steviol glycosides are heat stable. Water extracts of the crushed leaves of the stevia plant have been used as a sweetener for many years in some countries in South America and in Asia.

Ref. FAO Fact Sheet, Steviol Glycosides, 2008:
www.fao.org/ag/agn/agns/files/FACTSHEET_%20STEVIOL%20GLYCOSIDES_final1.pdf



SAFETY

In June 2008 the Joint FAO/WHO Expert Committee on Food Additives (JECFA) concluded that Steviol glycosides are safe for use in foods and beverages and established an Acceptable Daily Intake (ADI) of 4 mg/kg body weight (expressed as steviol). JECFA established specifications for the identity and purity for Steviol glycosides, requesting a minimum content of 95 % of the sum of the 7 named Steviol glycosides (Stevioside, Rebaudioside A, Rebaudioside C, Dulcoside A, Rubusoside, Steviolbioside, Rebaudioside B).

REGULATORY STATUS

EUROPEAN UNION

In Europe, steviol glycosides are not yet approved for use as a sweetener. The European Food Safety Authority (EFSA) has conducted a general safety assessment for the approval of Steviol glycosides as a sweetener in foodstuffs and for use as a flavour enhancer. A positive scientific Opinion from EFSA, setting an ADI of 4 mg/kg body weight, was published on 14th April 2010. The European Commission are currently drafting legislation for the authorisation and placing on the market of this substance in the EU.

In France, the French Food Safety Agency (AFSSA) evaluated Rebaudioside A and gave a positive safety assessment. In September 2009, France authorised the use of Rebaudioside A as a sweetener at national level for a temporary period until the establishment of the Annex of the new EU additives framework regulation (expected early 2011). Due to this new legislation, after January 2010 an EU Member State will no longer be able to authorise a food additive at national level.

Based on the JECFA evaluation 2008, Switzerland has decided to grant provisional individual, national authorisations for food products containing Steviol glycosides in compliance with the JECFA specification.

UNITED STATES

In December 2008, the US Food and Drug Administration (FDA) stated it had no objection regarding the conclusion of expert panels that stevia containing a minimum of 95% Rebaudioside A is Generally Recognised As Safe (GRAS) for use as a general purpose sweetener in foods and beverages.

WORLDWIDE

Australia and New Zealand approved Steviol glycosides in compliance with the JECFA specification for use in a defined range of food applications in 2008.

In Japan, China, Korea, Brazil and several other countries worldwide, Steviol glycosides are considered natural food constituents and, as such, are implicitly accepted for food use.