symrise

appl'in™

Glucose management

Contact us

—*Market*

The World Health Organization (WHO) has estimated that high blood glucose is the third leading global risk for mortality, after high blood pressure and tobacco use.
High glycemia causes diabetes and ischaemic heart disease (WHO 2009).

—*Our solution*

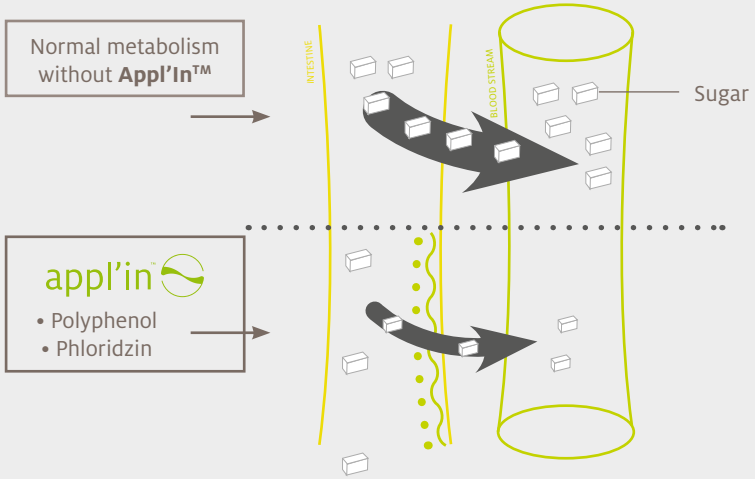
France is well known for its variety of apples and orchards. Symrise with its **diana food™** portfolio brand has developed close partnerships with local apple producers and had led extensive research work on apple's health benefits.

Apple polyphenols have been analyzed and phloridzin identified as a specific and unique polyphenol of Rosaceae. Phloridzin has been standardized and **Appl'In™** has been optimized for gluco blocking properties.

— *Specificities of our solution*

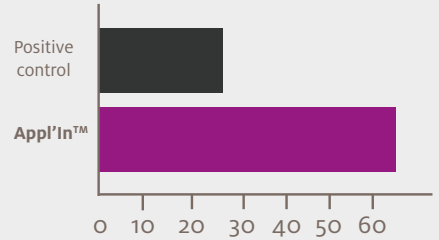
- Natural and food grade
- High level of polyphenol (>80%)
- Standardized in phloridzin (>5%)
- Composition and application patent
- Full traceability on apple from French origin
- Allergen free

What are the effects on your intestine?

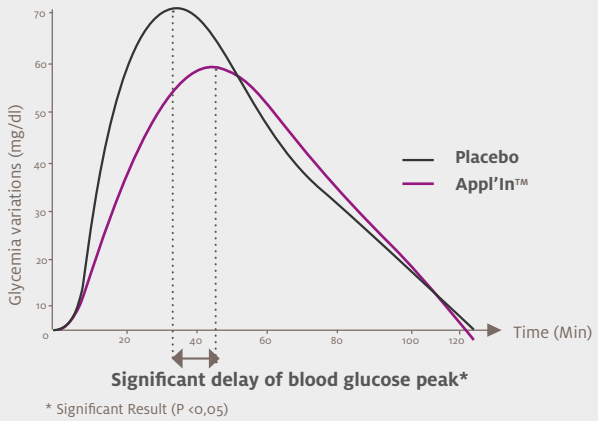


***Appl'In™** limits glucose absorption by inhibiting glucose on both facilitative and active transport.*

Inhibition of facilitative glucose transport

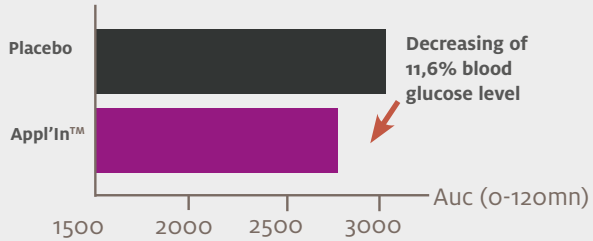


Appl'In™ impact on blood glucose level per protocole



* Significant Result (P <0,05)

Appl'In™ impact on blood glucose level



*[1]Unpublished in vitro Diana study / [2] Preliminary study: effect of **Appl'In™** on blood glucose levels after sucrose loading, Cernh (2007) / [3] Clinical study: effect of **Appl'In™** on blood glucose levels after sucrose loading, Cernh (2008)*

— Appl'in™ glucose blocking effect

—*Inhibition of glucose absorption*

Study design: *In vitro*[1], Ishikawa cells used to evaluate **Appl'In™** effect on GLUTn transporters. GLUTn transporters facilitates absorption of glucose in digestive system.

Appl'In™ has shown a strong inhibition of glucose facilitative transport with a nearly 60% rate.

—*15 minutes delay of the peak of glycemia*

Study design: Simple blind human study[2] with 10 volunteers. 250mg of **Appl'In™** 30 min before a sucrose solution intake.

Glycemia peak for placebo population (34 min) appears 15 min before glycemia peak for Appl'In™ population (44 min).

—*Significant decrease of the glycemic response*

Study design: double blind, cross over human study[3] with 18 volunteers. 250 mg of **Appl'In™** 15 min before sucrose solution.

KEY FEATURES

- Patented in EU, US and Japan
- Supported by human clinical trials
- High stability
- Gluco Blocker Effect
- Indicative ORAC value: 8600µmol TE/g
- Equivalence : 50 mg of Appl'In™ = one apple (based on phloridzin content)
- Recommended dosage: 250 to 1000mg / meal

— Frequently asked questions

What is Appl'In™?
Appl'In™ is a patented natural extract of apple standardized in phloridzin. This polyphenol specifically found in the Rosaceae inhibits glucose transport through the intestinal barrier. It is a popular ingredient in weight management products.

How does this extract compare to eating an apple?
The ingestion of one apple provides on average 2.5 mg of phloridzin. 50 mg of **Appl'In™** provides the phloridzin equivalent of one apple.

Is Appl'In™ effective in weight management?
diana food™ has conducted independent efficiency studies, including in vitro and human clinical trials, to show that **Appl'In™** inhibits glucose transports, decreases significantly blood glucose concentration and insulinemic response thus limiting fat storage.

Who should take Appl'In™?
Appl'In™ is recommended for overweight people and for people who want to control their appetite.

Is Appl'In™ safe?
The apple is a unique fruit for which regular consumption has been unquestionably linked to many health benefits, leading to the famous adage "an apple a day keeps the doctor away". **Appl'In™** is extracted from apples and uses food grade processes. Toxicity studies have also demonstrated **Appl'In™**'s safety (Besnard M *et al.* Polyphenolic apple extract: characterisation, safety and potential effect on human glucose metabolism. AgroFood Industry Hi-tech, vol 19 n°4, July/August 20 08, p16-19).

Is Appl'In™ patented?
Appl'In™ is a unique preparation protected in Europe, in the United States of America and in Japan.

What is the recommended daily dosage of Appl'In™?
Diana Food's clinical studies support a possible effective dosage of 25mg **Appl'In™** /g of sucrose. This concentration is in accordance with scientific literature, suggesting 250mg of **Appl'In™** as minimum effective dosage.

Where is Appl'In™ produced?
Appl'In™ is extracted from fresh apples, and is produced in France, in a FSSC22000 certified facility.

Technical dossier on request

symrise

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