



DETOXIFICATION

brassicare® 

THE «SUPER» VEGETABLE

HISTORY

Broccoli has been cultivated in Italy since the middle age. Broccoli contains many phytochemicals among which glucosinolates, a family of sulphur compounds (as glucoraphanin), are the most well known.

OUR SOLUTION

Diana Food has selected the best varieties of broccoli to offer the highest level of glucosinolates including glucoraphanin (precursor of sulforaphan).

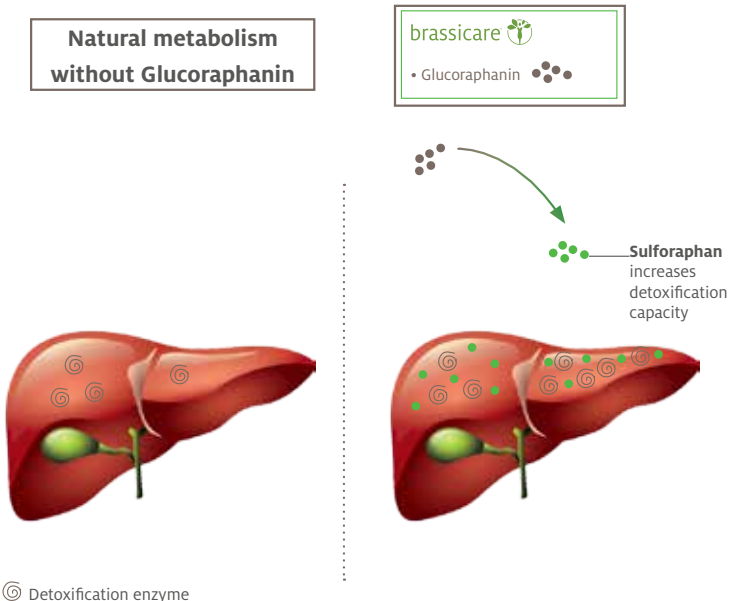
Extensive research on the health benefits of these compounds, especially sulforaphan, has shown two important benefits:

- Improvement in liver detoxification
- Anti microbial effect

SPECIFICITIES OF OUR SOLUTION

Natural food grade / High and guaranteed level of glucoraphanin and potential sulforaphan / High water solubility / Low flavor / Kosher certificate / Full traceability on broccoli and agronomic expertise

WHAT ARE THE EFFECTS ON YOUR LIVER ?



Brassicare® consists in :
providing glucoraphanin, precursor of sulforaphan @ increasing detoxification capacities.

SCIENTIFIC BACKGROUND

INHIBITION OF TOXIN SYNTHESIS (LIVER CELL MODEL)

Study design: *in vitro*¹ on hepa RG cells to measure the inhibition of enzymatic activity

Activity of **Brassicare**[®] was studied on CYP1A2 which is a phase I enzym. It is the first step of the detoxification pathway by creating biointermediates, sometimes harmful. During this step, liver catalyses toxin and creates toxic or carcinogen molecules. Sulforaphan decreases by 60 % the enzymatic activity of phase I. Oltipraz is a positive control for toxin excretion.

INCREASING EXCRETION ACTIVITY OF LIVER

Study design: *in vitro*¹ on hepa RG cells.

With the same model, Diana Food analyzed **Brassicare**[®]'s action on toxin excretion. Oltipraz is a positive control for toxin excretion.

100µg/ml of Brassicare[®] is equivalent of treatment with 35µM of Oltipraz.

PROTECTING LIVER CELLS

Study design: *in vitro*¹ on hepa RG cells

GPX, glutathione peroxidase, is very important in the oxydo reduction potential. It can protect from oxidative damage in liver cells (hepatocytes).

300µg/ml of Brassicare[®] has the same effect than Oltipraz 25 µM

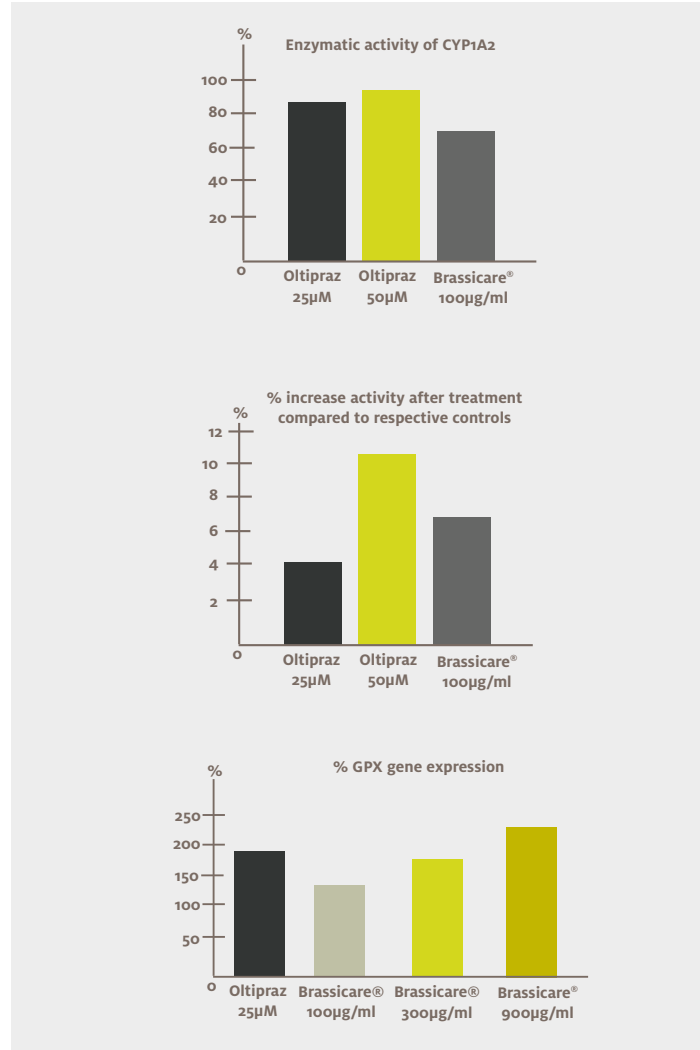
ANTIBACTERIAL ACTIVITY

Study design: *in vitro*². **Diana Food** compares minimal inhibitory concentration at pH 5,8 of :

-Pure sulforaphan

-**Brassicare**[®] treated with thioglucosidase to imitate digestion (transformation of glucoraphanin into sulforaphan). **Diana Food** tested antibacterial effect of **Brassicare**[®] on *Campilobacter jejuni* and on *Helicobacter pylori* which can be responsible for duodenal ulcer.

«Brassicare[®] (after transformation) is a good antibacterial agent. This natural active can be part of the diet to prevent foodborne infections» as concluded by our research partner.



KEY FEATURES

- Natural food grade
- Strong scientific support
- Daily dose: 100 – 200mg/day
- Safe



¹ Broccoli extract properties on hepatocytes, DIANA (2006)

² The anti-bacterial activity of either Brassicare[®] treated by the purified thioglucosidase, or pure sulphorane on *Helicobacter pylori* and *Campylobacter jejuni*, DIANA (2007).

FREQUENTLY ASKED QUESTIONS

What is Brassicare®?

Brassicare® is an extract that includes all of the organosulfur compounds (especially glucosinolates) naturally present in fresh broccoli. It is standardized to 0.8% glucoraphanin.

What is glucoraphanin?

Glucoraphanin is a key protective compound from broccoli, part of the glucosinolates family. It is the precursor of highly bioavailable sulphur compounds, such as sulforaphan, generated in the digestive tract during digestion. **Brassicare®** is rich in these glucosinolates. It delivers all the benefits of fresh broccoli due to the sulphur compounds generated from the glucoraphanin carefully stabilized in the extract.

How can Brassicare® promote the liver detoxification?

In addition to its direct antioxidant properties, broccoli also acts as an indirect antioxidant by activating the detoxification system. The effect of **Brassicare®** on the activity of enzymatic detoxification complexes has been evaluated *in vitro*. Results show that **Brassicare®** acts as a booster of the detoxifying system, helping the body counter the negative effects of modern life: increased stress, unbalanced diet, air pollution, etc...

Is Brassicare® safe?

Brassicare® is a food-grade natural extract of broccoli. Its safety has been documented in toxicity studies.

What is the recommended daily dosage of Brassicare®?

Scientific research realised on liver detoxification and anti-bacterial effect supports a 100 mg recommended daily dosage of **Brassicare®**.

Where is Brassicare® produced?

Brassicare® is extracted from fresh broccoli, and is produced in France, in a FSSC 22000 certified facility.

TECHNICAL DOSSIER ON REQUEST

WELL-BEING BY NATURE



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