



Spanish Black Radish

7515 30 Tablets | 7530 90 Tablets



DETOX & LIVER

- Provides support for the body's organs*
- Our research shows that Spanish black radish induces the body's detoxification enzymes in cell and animal models*
- 3 tablets per day supports the body's normal toxin-elimination function*
- Encourages healthy digestion*
- Supports the body's normal toxin elimination function*
- Contains organically grown Spanish black radish

Warning: Keep out of reach of children.

Supplement Facts

Serving Size: 1 Tablet

Servings per Container: 90

	Amount per Serving	%Daily Value
Calories	5	
Total Carbohydrate	<1 g	<1%*
Vitamin C	5 mg	6%
Organic Spanish black radish (root)	750 mg	†

*Percent Daily Values are based on a 2,000 calorie diet.

†Daily Value not established.

Other Ingredients: Organic honey, organic camu camu (berry), organic manioc (root), organic rice extract, organic rice hulls, organic acacia fiber, and organic sunflower oil.

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Myrosinase enzyme found in cruciferous vegetables or produced by intestinal bacteria converts glucosinolates to the active compounds (isothiocyanates). Raphasatin is an isothiocyanate derived from the glucosinolate glucoraphasatin found in Spanish black radish that activates phase one and two detoxification enzymes.

The Benefits of Glucosinolates

Radishes (*Raphanus sativus L.*) are members of the cruciferous vegetable family that contains broccoli, cauliflower, cabbage, and kale. Radishes are available in varieties that differ in terms of size, shape, and color. Spanish black radishes (SBR) (*Raphanus sativus l. var. niger*) are particularly rich in a class of phytonutrients called glucosinolates, which have been associated with several beneficial health outcomes attributed to consumption of cruciferous vegetables.^{1,2}

Glucosinolates and their metabolites exert beneficial effects via the induction of metabolic detoxification Phase I and Phase II enzymes, which are responsible for the activation and conjugation of toxins.¹⁻⁴ The glucosinolates in SBR are unique in both content and concentration, especially in comparison to other cruciferous vegetables.² For example, the glucosinolates in SBR make up over 4% in sprout of their total dry weight compared to 1% of the broccoli sprout, another common crucifer.^{2,3}

Spanish black radish also differs from other common crucifers in the glucosinolates it contains- glucoraphasatin accounts for over 65% of the glucosinolates in SBR.² The metabolite of glucoraphasatin, 4-methylthio-3-butenyl isothiocyanate (raphasatin) carries similar potency as sulforaphane (the metabolite of glucoraphanin that is particularly abundant in broccoli) on Phase II gene expression.^{2,3}

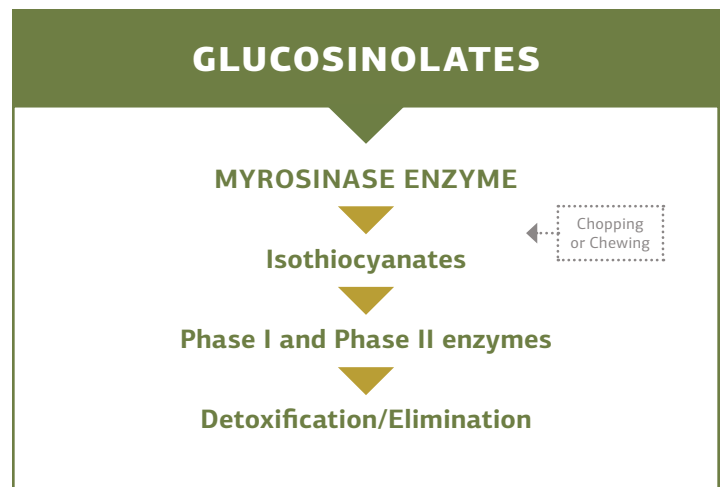


FIGURE 1: Conversion of glucosinolates to the active isothiocyanates compounds

Products labeled as **USDA Organic** means they have been certified as Organic by a USDA-accredited certifying agent. **Gluten-Free** products have been tested to verify they meet the regulations associated with the United States Food and Drug Administration's gluten-free labeling. **Vegetarian** products are considered lacto-ovo vegetarian, which means they are devoid of animal-based tissue, animal-based gelatin, or fish oil. They may contain animal-based ingredients such as dairy, eggs, honey, beeswax, or lanolin. **Non-Dairy or Non-Dairy Formula** products have been formulated to not contain milk or milk-derived ingredients. **Non-Soy** products have been formulated to not contain soy or soy-derived ingredients.

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Metabolism of Toxins

Phase I and phase II detoxification enzymes work together to help the body break down and manage compounds that need to be removed. Mice fed a diet containing 20% SBR for two weeks showed significant enhancement of the metabolism of toxins as demonstrated by significantly increased expression of Phase I and II detoxification enzymes.⁵

Liver Detoxification

Standard Process conducted an open-label pilot study to evaluate the efficacy of SBR in inducing Phase I and II enzymes in healthy male subjects (n=20). Acetaminophen is metabolized in the liver through pathways that involve Phase II enzymes, including conjugation, sulfation, and glucuronidation, that produce measurable metabolites in blood and urine. Consumption of SBR increased liver detoxification capacity and positively altered the metabolism of acetaminophen via increased urinary excretion.⁴

Additional Product Support

- Livaplex®
- Garlic
- Cruciferous Complete™

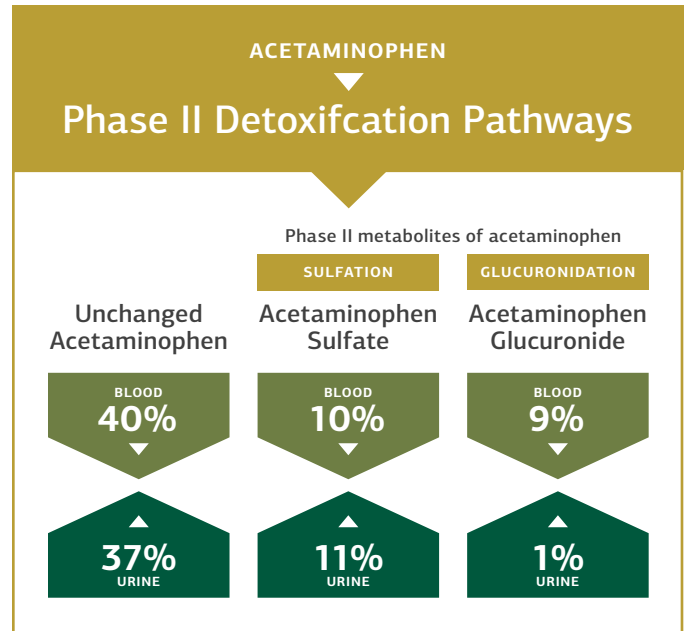


FIGURE 2: Liver detoxification capacity with SBR supplement⁴

The effects of taking SBR supplement for four weeks on the detoxification of acetaminophen in male subjects as assessed by the change (increase or decrease) in the amount of acetaminophen metabolites in blood and urine from baseline.

Since 1929, **Standard Process** has been changing lives with our whole food philosophy.

REFERENCES

1. Hanlon, P.R., Barnes, D.M. (2011). J Food Sci, 76:C185.
2. Hanlon, P.R., Webber, D.M., Barnes, D.M. (2007). J Agric Food Chem, 55:6439.
3. Lewis, J., Fenwick, G. (1987). Food Chem, 25(4):259.
4. Evans, M., Paterson, E., Barnes, D.M. (2014). BMC Complement Altern Med, 14:475.
5. N'jai, A.U., et al. (2012). Nutr Cancer, 64:1038.