

## LIGNANS (Phytonutrients).

### Source.

Currently, there are two types of lignans on the market: 1) Flax hull (SDG) lignans, derived from the hulls of flax seed; and lignan that is derived from the Norwegian Spruce tree (HMR lignan). Extensive discourse on these two product types can be found by Googling the Internet.

### Active Ingredients.

**SDG flax hull lignan.** The major active ingredient of flax hull (SDG) lignan is secoisolariciresinol diglucoside (thus, SDG). SDG flax hull lignan is metabolized by intestinal bacteria to enterolactone (the major active mammalian lignan that is found in body tissues), and also enterodiol (also a mammalian lignan). Both enterolactone and enterodiol are formed in the gastrointestinal tract by bacterial breakdown of the consumed SDG lignan. The process involved with SDG lignan is a two-step procedure that delays absorption time ([www.organic-herb.com](http://www.organic-herb.com)). But, the usual doses used appear to give adequate levels of enterolactone for 24 hours on a once-daily-dosing basis ([www.lpi.oregonstate.edu/infocenter/phytochemical/lignans](http://www.lpi.oregonstate.edu/infocenter/phytochemical/lignans)).

**HMR lignan.** The active ingredient of HMR lignan is different from that of SDG flax hull lignan, and is 7-hydroxymatairesinol (thus, HMR). HMR lignan is extracted from the Norwegian Spruce tree, and yields high amounts of HMR lignan. Once ingested, it is directly converted by gastrointestinal bacteria into the major-endogenous-mammalian lignan (enterolactone). HMR lignan forms more enterolactone than SDG flax hull lignan, since another endogenous-mammalian lignan called enterodiol, is formed by SDG lignan, and is less bioactive in systemic tissues compared to enterolactone. Cleavage of sugar chains must occur for SDG flax hull lignan, by the intestinal bacteria, before the mammalian lignans are formed. This may or may not offer efficacy advantages to HMR lignan (further research will be needed to prove or disprove this). Blood levels of HMR lignan remain adequate for 24 hours on once-daily-dosing. HMR lignan reportedly is readily and completely absorbed from the gastrointestinal tract (SDG lignan is not completely absorbed, although adequate blood levels do occur from dosages used). Thus, better bioavailability and a more rapid uptake occurs for enterolactone formed from HMR lignan. Since HMR lignan's bioavailability to the body is better than SDG flax hull lignan, this allows reduced doses to be used. HMR lignan was developed in Finland, and was subsequently licensed for distribution by the Linnea Company in Lokarno, Switzerland. The extract of the Norwegian Spruce tree is essentially pure HMR lignan, so the fiber component of SDG flax hull lignan is missing. HMR lignan is worthy of consideration as a viable competitor of SDG flax hull lignan. ([www.hmrlignan.com](http://www.hmrlignan.com); [www.swansonvitamins.com/health-library/products/7-hmr](http://www.swansonvitamins.com/health-library/products/7-hmr); [www.naturalnews.com](http://www.naturalnews.com)).

### Adverse Effects.

SDG lignan, having fiber as a component, can cause increase in stool frequency (and occasionally diarrhea). HMR lignan contains very little (if any) fiber, so this side effect should not be seen with HMR lignan.

## Safety.

No adverse effects to the use of SDG flax hull lignan have been reported to our lab, based on suggested doses to use (one mg/lb of body weight daily). We only have limited feedback (at this time) on the use of HMR lignan. In human studies with HMR lignan, single doses of 1,200 mg did not have any side effects ([www.hmrlignan.com](http://www.hmrlignan.com)). And in a chronic (13 week) study in rodents, 2,600 mg/kg of HMR lignan did not cause any toxic effects ([www.cat.inist.fr](http://www.cat.inist.fr)).

## Literature.

**SDG flax hull lignan.** See the article from the Linus Pauling Institute at Oregon State ([www.lpi.oregonstate.edu/infocenter/phytochemicals/lignans](http://www.lpi.oregonstate.edu/infocenter/phytochemicals/lignans)).

**HMR lignan.** See Linnea website ([www.hmrlignan.com](http://www.hmrlignan.com)).

**NOTE:** The following websites and information are meant to assist in identifying product sources of lignans. The Diagnostic Endocrinology Service does not endorse the following websites.

## SDG Flax Hull Lignan Product Sources. (Lignan content can be determined).

1. Lignans for Life ([www.lignans.net](http://www.lignans.net)).  
90 capsules per container. 33 mg SDG lignan per capsule.
2. Source Naturals ([www.sourcenaturels.com](http://www.sourcenaturels.com)).  
High SDG flax hull lignan product.  
Each capsule contains 70 mg of SDG lignan.  
A LinumLife™ product.
3. Vitacost ([www.vitacost.com/NSiflaxseedlignans](http://www.vitacost.com/NSiflaxseedlignans)).  
Low SDG flax hull lignan product.  
Each capsule contains 8 mg of SDG lignan.  
A LinumLife™ product.
4. Vital Nutrients ([www.vitalnutrients.net](http://www.vitalnutrients.net)).  
Each capsule contains 78 mg of SDG lignan.
5. Barlean's ([www.brevail.com](http://www.brevail.com)).  
The SDG flax hull lignan product is called Brevail™.  
Each capsule contains 50 mg of lignan.  
Available in most health food stores.
6. Kordial Nutrients ([www.kordialnutrients.com](http://www.kordialnutrients.com)).  
A 5.3 ounce container of SDG flax hull lignan product.  
Each 5 grams contains 215 mg of SDG lignan.  
Standard-sized teaspoons hold 5 grams.

- One-half teaspoonful would be approximately 100 mg of SDG lignan.
7. Heartland Natural ([www.heartlandnatural.com](http://www.heartlandnatural.com)). Capsules/Powder.  
90 capsules per container. 33 mg of SDG flax hull lignan per capsule.  
5.3 ounce concentrated SDG flax hull lignan powder. 6 grams of this product contains 223 mg of SDG lignan.  
One standard-sized teaspoonful contains 5 grams, or approximately 185 mg of SDG flax hull lignan.  
One-half teaspoonful would contain 93 mg of SDG flax hull lignan.
  8. Badmonkey Botanicals ([www.badmonkeybotanicals.com](http://www.badmonkeybotanicals.com)).  
SDG flax hull lignan concentrate that uses the LinumLife™ extract. Each container contains 200 grams of product.  
One gram of product contains 50 mg of SDG flax hull lignan.  
One standard-sized teaspoonful contains 5 grams, or 250 mg of SDG lignan.  
One-half teaspoonful would contain 125 mg of SDG lignan.

**HMR Lignan Product Sources.** (Lignan content can be determined).

1. Lignans for Life ([www.lignans.net](http://www.lignans.net)).  
90 capsules per container. 40 mg HMR lignan per capsule.
  2. Swanson Vitamins ([www.swansonvitamins.com](http://www.swansonvitamins.com)).  
7-HMR lignan. 60 capsules per container. 40 mg per capsule of HMR lignan.  
Be sure to read the write-up on HMR lignan on this web page.
  3. Super Smart ([www.super-smart.eu](http://www.super-smart.eu)).  
7-HMR lignan. 90 capsules per container. 10 mg per capsule of HMR lignan.
  4. Astro Nutrition ([www.astronutrition.com](http://www.astronutrition.com)).  
7-HMR lignan. 30 capsules per container. 30 mg per capsule of HMR lignan.
- The above products can give different dosing levels depending on the number of capsules used, but total doses of 10 to 40 mg daily should be adequate for small to large dogs.

**Further Notes:**

1. There are many more SDG flax hull lignan products that can be viewed by Googling the Internet. But, be sure to pick products where the SDG lignan content can be determined from a product label. Currently, there are less choices available for the HMR lignans, but the above list seems adequate and flexible in terms of dosing.
2. Be aware that measurements are sometimes listed incorrectly. For example, one ounce is equivalent to 30 grams (or 30 milliliters). Equivalent measures used in households are: one standard-sized teaspoon will contain 5 grams; one standard-sized tablespoon will contain 15 grams. Many sites on the Internet have tablespoons or teaspoons holding different amounts than the above accepted levels.

*May 1, 2010 (JWO), revised 3-2012 (KF)*