



**Abstract
#29.**

Prioritizing non-vitamin and mineral ingredients (non-VM) in the Dietary Supplements Ingredients Database (DSID).

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Types of databases



- Label-Based (non-verified values)
 - NHANES
 - Dietary Supplement Label Database (DSLDB)
- Analytically-derived
 - DSID

How Products are Labeled

DV nutrients

Manufacturers have options on how they can report levels of non-DV ingredients on a label.

Directions: Shake well. Take 1 fl. oz. first thing in the morning. Take up to 2 more servings during the day. Refrigerate after opening.

Supplement Facts

Serving Size: 1 fl. oz. (2 fl. oz.)
 Servings Per Container: 18

Amount Per Serving	%DV*
Total Carbohydrate	
Sugar	5 g 10%
Vitamin A (as beta-carotene)	8000 IU 100%
Vitamin C (as ascorbic acid)	135 mg 258%
Vitamin D (as Cholecalciferol)	400 IU 100%
Vitamin E (as d-alpha-tocopheryl acetate)	80 IU 200%
Thiamin (Vitamin B1)	0.5 mg 38%
Riboflavin (Vitamin B2)	0.5 mg 38%
Niacin (Vitamin B3)	6.25 mg 38%
Vitamin B6 (as pyridoxine HCl)	0.75 mg 44%
Folate (as folic acid)	400 mcg 100%
Vitamin B12 (as cyanocobalamin)	1.8 mcg 28%
Biotin (as d-Biotin)	300 mcg 100%
Pantothenic Acid (Vitamin B5)	2.5 mg 25%
Inositol	25 mg —
Para-Aminobenzoic Acid	25 mg —
Rutin	18 mg —
Proprietary XELRS Phyto8 Blend	32.75 g —
*%DV Daily Value is not established. **Daily Value based on 2000 calorie diet.	

Proprietary XELRS Mineral Blend (50 mg)
 Calcium (Oxide), Calcium, Sodium, Sulfur, Magnesium, Chloride, Boron, Fluoride, Iodine, Potassium, Nickel, Aluminum, Iron, Phosphorus, Silicon, Manganese, Borel, Strontium, Barium, Tungsten, Copper, Zinc, Tin, Zirconium, Molybdenum, Vanadium, Chromium, Selenium, Nickel, Cobalt, Lithium, Gallium, Barium, Praseodymium, Holmium, Cadmium, Thulium, Antimony, Cerium, Tellurium, Beryllium, Samarium, Dysprosium, Erbium, Barium, Gadolinium, Cesium, Lanthanum, Promethium, Europium, Lutetium, Terbium, Ytterbium, Holmium, Thulium, Thulium, Vanadium, Germanium, Gold, Rhenium, Rhodium, Radium, Rubidium, Scandium, Silver, Indium.

How does DSID Operate



1. Identify Product Type and Ingredients of Interest
2. Identify and Acquire Representative Products
3. Analyze Representative Samples
4. Present Findings

1. Identify Product Type and Ingredients of Interest



- **11** selected from original list of **41**:
 - **CoQ10**, garlic, saw palmetto, ginkgo biloba, **glucosamine**, ginseng, green tea catechins (**EGCG** and other catechins), milk thistle, echinacea, flaxseed, and turmeric (curcumin).
- Prioritization criteria:
 - existence of studies or safety concerns, public exposure, federal research priorities, and availability of validated analytical methods and analytical reference materials.

Excerpt of Ranking Table



Component	Exposure/ Intake (NHANES/ NHIS) ¹	Exposure/ Sales (NBJ)	Validated Method Available for Analysis	Reference Materials Available	Total
CoQ10	/5	5	5	5	21
Garlic	3/5	4	5	5	21
Ginkgo biloba	/5	4	4	5	20
Ginseng	3/5	4	5	-	17.5
Saw Palmetto	/4	4	5	5	20.5

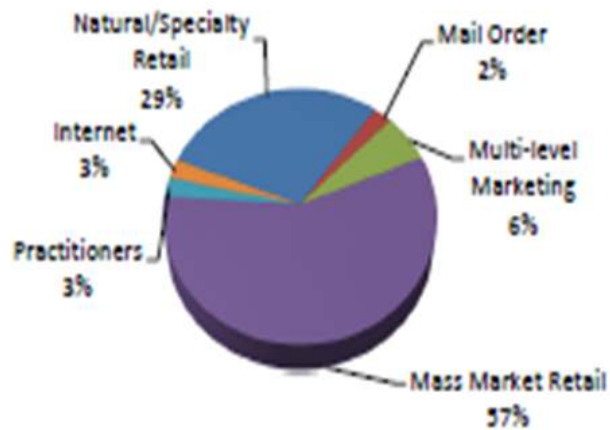
¹ Higher of two scores included in Total

2. Identify and Acquire Representative Products



- Select within top and bottom-tier of sales and consumer usage data.
- Sources of information:
 - NHANES
 - Nutrition Business Journal (NBJ)
 - Commissioned shopping surveys
 - Scan data: AC Nielsen, IRI, etc (*has limitations*)

Where Products are Sold: Distribution Channels



Source 2011 NBJ's Supplement Business Report

3. Analyze Representative Samples



- Are there reliable and reproducible **analytical methods** to quantify the ingredients of interest in dietary supplements, e.g., AOAC.
- **Reference materials** with known quantities of the ingredients of interest, e.g., NIST.
- Identify and **qualify laboratories**.

Other Considerations



Single Chemical Constituent:

- CoQ10, glucosamine, EGCG

Extracts or purified extracts:

- garlic, saw palmetto, ginkgo biloba, ginseng, green tea catechins, milk thistle, echinacea, and turmeric (curcumin).

Industry Standard (or Identified Active Constituents):

- Commission E monographs (Germany)

4. Present Findings



- DV-Nutrients
 - Prediction equations based on analytical results for specific ingredients.
 - Regression techniques used to estimate average ingredient amounts and variability at a range of labeled levels.
- Non-DV dietary ingredients:
 - Statistical estimates of ingredient amounts and variability around labeled levels.

Reporting: Compares Analyzed Levels to Labeled Values



Nutrient	Range of Predicted % Differences from Label	Most Common Labeled Level per Serving	Predicted % Difference from Label at Most Common Level
Vitamin C	8 to 9 %	60 mg	8.3 %
Vitamin B-6	-5 to 6 %	2 mg	5.4 %
Vitamin E	5 to 6 %	27 IU	6.0 %
Calcium	7 to 29 %	162 mg	14.1 %
Iron	-1 to 16 %	18 mg	0.9 %
Iodine	26 %	150 mcg	26.2 %

Collaborators



USDA:	Karen Andrews , Joanne Holden, Janet Roseland, James Harnly
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