



## NOW's Testing Results of Berberine Products December 2023

NOW tested over thirty Berberine supplements after surveying the online marketplace for questionable products. Berberine is an intensely yellow colored alkaloid extracted from various plants such as Barberry and Oregon Grape Roots. Goldenseal is one well known example of a berberine rich plant and enjoys a long history of medicinal use by Native American tribes. Berberine has recently risen in popularity on social media as a dietary supplement. With such a rise in popularity there is the possibility for deceptive players to take advantage of the increased demand by offering inferior or adulterated products. This is the 16<sup>th</sup> round of product testing performed by NOW since 2017.

Berberine supplements (like NOW's) are typically made in hydrochloride (HCl) form, which is obtained from an extraction of *Berberis aristata* bark. Berberine HCl dihydrate is typically used as the supplement source of Berberine HCl and is 85-90% potency. This means if brands claim 500 mg Berberine on a label and it is in the HCl form, the supplier must input 550-575 mg Berberine HCl dihydrate to meet the label claim. Some brands claim "Berberine" in the Supplement Facts panel for potency, while others list "Berberine HCl". While both are technically legal, full disclosure would list like: "Berberine HCl 500 mg (from 550 mg Berberine HCl dihydrate)". Therefore labeling, testing and calculations are complicated.

We purchased two bottles of each product from 33 brands (including NOW) sold on both Amazon and Walmart.com. It was suspicious even before testing that many brands may be fraudulently mislabeling potency on the front label panel due to high potency claims. The quality of each brand was assessed by high performance liquid chromatography (HPLC) with ultraviolet light detection (HPLC-UV). HPLC was also used to quantify the amount of berberine hydrochloride in tested products.

Externally, NOW sent one unopened bottle of each brand to Alkemist Labs to provide an independent report on the same products. HPLC was performed by both NOW's in-house lab as well as Alkemist Labs, an industry-leading contract laboratory we partnered with on a previous round of marketplace testing.

Below are highlights of this testing group, as well as detailed assay results:

- The products chosen were purchased from both Amazon and Walmart.com in early November 2023. These brands were picked because they are less known and sold almost entirely on these platforms. We have avoided testing health food store brands or practitioner brands as being less of a concern.
- The results of this round of testing showed serious levels of low potencies with every brand testing below 100% potency, except NOW. Seven brands did contain over 80% labeled potency and three brands contained 90-97% potency.
- NOW has tested some of the same brands previously, while testing other categories, and found similar problems. aSquared brand has failed eight different rounds of product testing and has the worst record for potencies tested among all brands.
- 18 of the 33 brands tested contained less than 40% of labeled potency. That's more than half of all brands tested that didn't even contain a mediocre 40% level of potency.
- 7 of the 33 tested samples had 1% or less of Berberine potency in each product. It appears that all of these seriously flawed brands were tested for the first-time in NOW's testing program and may be new brands. These include: Earth Bare, Greabby Gummies, GreenPeople Formula, KoNefancy, Satoomi, Vitamiscence & Wellness Labs Rx.



Brand Tested for Berberine HCl	Size	Lot #	Label Claim	NOW Test	Alkemist	Avg % Results
aSquared FL	180 Veg Caps	BE6645-102-1	500 mg	107	135	24%
Avenir Sugar Ease WY	60 Veg Caps	230354	300 mg	157	187	57%
BMVINVOL Formula TX	150 Veg Caps	15C42/1-10000	200 mg	13	4	4%
Deal Supplement CA	300 Veg Caps	Illegible	500 mg	47	6	5%
Doctor Recomm./New World	120 Veg Caps	2023-1915?	600 mg	573	595	97%
Earth Bare	60 chews	SY2374	750 mg	0	0	0%
Genex Formulas FL	90 Veg Caps	BE6154-087-1	500 mg	79	127	21%
Greabby Gummies TX	60 Gummies	DC23B05	750 mg	0	0	0%
Green Habits NY	60 Veg Caps	BER230217-60	600 mg	346	373	60%
GreenPeople Formula TX	90 Veg Caps	No lot #	500 mg	0	0	0%
HivoNutra Formula FL	60 Veg Caps	7042305-181	375 mg	120	172	39%
KoNefancy TN	60 Softgels	KSF-156-4592	750 mg	0	9	1%
Luma Nutrition CA	60 Veg Caps	BER230806-60	600 mg	352	385	61%
Naomi Whittel FL	60 Veg Caps	160301	500 mg	395	443	84%
Naturebell CA	240 Veg Caps	P776251	500 mg	326	381	71%
<b>NOW Foods</b>	<b>60 Softgels</b>	<b>3290158</b>	<b>400 mg</b>	<b>428</b>	<b>404</b>	<b>104%</b>
Nutreb FL	60 Veg Caps	11162306-205	600 mg	422	483	75%
Nutriflair WA	120 Veg Caps	NB1002	600 mg	85	111	16%
NutriVein WA	120 Veg Caps	NB9127	600 mg	152	156	26%
One Planet Nutrition FL	120 Veg Caps	22020	250 mg	16	33	10%
Research Labs	90 Veg Caps	230525	500 mg	143	186	33%
Satoomi.com (India/NC)	60 Veg Caps	Illegible	333 mg	0	0	0%
Simply Natures Pure DE	120 Veg Caps	2023-19203	500 mg	425	468	89%
Sotalix SC	150 Veg Caps	230527	500 mg	0	29	3%
Sunergetic NY	60 Veg Caps	416788	600 mg	547	596	95%
thinbi Brand CA	60 Veg Caps	123144	500 mg	376	407	78%
Thomas Remedies GA	120 Veg Caps	TB9077	500 mg	148	201	35%
Toniiq IL	180 Veg Caps	A24839235-7	500 mg	423	480	90%
Toplux Nutrition CA	90 Veg Caps	BER230627-90	600 mg	340	369	59%
Vitalite Now NY	60 Veg Caps	27995	500 mg	404	478	88%
Vitamiscence FL	60 Veg Caps	41095	600 mg	0	2	0%
Wellness Labs Rx	120 Veg Caps	NG2023031509	500 mg	0	0	0%
Wholesome Story WA	90 Veg Caps	2306054A	500 mg	382	429	81%

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