



Not All Derivatives of Rice Are Equal In Nutritional Bioavailability

When comparing rice bran derivatives and their 100-gram reports, it is essential to understand the role bioavailability plays in the nutritional potency of the product versus their simple aggregate nutritional comparisons. Not all derivatives of rice are equal in their bioavailability.

Unlike Nutralso[®], all other rice bran derivatives are created using a commercially available standard enzyme treatment (SET) process. After more than seven years of R&D, Quintessence Nutraceuticals developed a transformational technology using an enhanced enzyme treatment (EET) process. This patented technology produces a product (Nutralso[®]) that contains significantly higher levels of bioavailable protein, good fats with antioxidants and phytonutrients resulting in a much more pharmacologically efficacious product.

Laboratory Analysis. 100-gram reports for EET and SET derived products may appear to be similar based on standard aggregate nutritional analyses. However, these standard reports are based on an aggregate macronutrient nutritional profile analysis of the individual ingredients (protein, fat, carbohydrate, etc.) and do not express the bioavailability of each nutritional component. As shown in this table, the antioxidant embodiment of the EET product (Nutralso[®]) is much higher and therein lies an important key to significantly improved bioavailability.

Selected Micronutrient Comparison*

Nutrient	SET Product	Mg	Nutralso [®]	Difference
Tocopherols	10	ppm	21.1	211.0%
Tocotrienols	13	ppm	22.8	175.4%
Phytosterols	519	mg	940 ↑	181.1%
Oryzanols	230	mg	250	108.7%
* Aggregate macroanalysis-to-aggregate macroanalysis does not address bioavailability				

As further documented in an independent OA Laboratory analysis, the EET process yields significantly higher availability of fats (antioxidants and carbohydrates) and protein (peptides and amino acids) as compared to the SET process. This next table shows that the percentage of protein in the product derived from the SET process is 0.83% versus 2.65% for the EET process. Herein lies the reason why the 100-gram report for the SET product is not equal to the 100-gram report for Nutralso[®] in terms of nutritional potency – bioavailability. The EET hydrolyzed protein is over three times that of the SET.

In commercial practice this is important because the hydrolyzed value of the EET derived product requires significantly less aggregate protein to achieve the same end benefit when incorporated into a nutritional supplement formulation. In effect, over three times the SET derived product would be required to achieve the same performance result as the EET derived product (Nutralso[®]).



Comparison of the Isolates Derived from the Standard Enzyme Treatment (SET) Versus the Enhanced Enzyme Treatment (EET)

	Begin Wt. (G)	Decant Wt. (G)	% Solids	Dry Basis Wt. (G)	% As-Is Fat	% As-Is Protein
SET Four Sample Average	180	103.75	7.14	7.39	0.93	0.83
EET Four Sample Average	180	113.00	11.41	12.89	2.50	2.65

EET Improvement

Amount	0	9.25	4.27	5.50	1.56	1.82
%	0%	8.9%	59.8%	74.4%	167.6%	220.9%

Patentability. One additional indicator of the significant difference between the SET derived products and the EET derived product (Nutralso®) relates to patentability. An important clinical study on rice bran derivatives was completed in 2002 by Dr. Qureshi¹ based on products produced using the SET process. Although many attempts were made to get a patent using the results of that comprehensive clinical trial, no one was able to achieve patent status for the SET process. The problem was that the SET process did not achieve the performance levels required by the USPTO to rise above 'prior art' standards in nutritional potency (i.e., not 'unique' and 'no surprising result'). Simply put, the Quintessence patented EET technology⁽²⁾ and process achieved patent status because the process was scientifically documented as being measurably superior to the SET process. **Moreover, the Patent Examiner confirmed that "(Nutralso®) is a novel rice bran isolate wherein the bulk properties of the protein mixture are "significantly more" than that of the native protein in rice bran... The nutritionally enhanced isolate of (Nutralso®) is a mixture of hydrolyzed protein (peptides and amino acids), hydrolyzed starch and high-quality rice bran oil."**

The Bottom Line. In terms of nutritional potency and pharmacological efficacy, 100 grams of SET derived product is not equivalent to 100 grams of EET derived product (Nutralso®).

(1) *Effects of stabilized rice bran, its soluble and fiber fractions on blood glucose and serum lipid parameters in humans with diabetes mellitus Types I and II.* Qureshi, et. al – Journal of Nutritional Biochemistry 13 (2002), pages 175-187.

(2) *Patent No. 8,945,642 B2*