



## Use of Raspberry Seed Powder via their natural Polyphenols to Improve Flavor Profile and Nutritional Content of Baked Goods.

The raspberries that provide the seeds for Nutraberri products are all grown in Washington State and Oregon. The Pacific Northwest region is known for its wet, temperate climate, which provides the ideal conditions to grow caneberries, such as raspberries and blackberries. These raspberry seeds are milled local to the source, in Seattle, WA.

Raspberry seeds, though small, contain an array of nutrients that have been identified to be important to human health. For example, the cold-pressed oil from raspberry seeds is a surprisingly rich source of omega-3 fatty acids.[1]

Even after cold pressing the fatty acids from the seed, there remain a number of important nutrients in the defatted seed powder. Table 1 summarizes some of the important water soluble nutrients in defatted raspberry seed powder.

Nutrient:	Ellagic Acid	Ellagitannins	Proanthocyanidins	Total Polyphenols
Content:	50 mg/100 g	1760 mg/100 g	370 mg/100 g	2150 mg/100 g

Table 1 – Ellagic acid, ellagitannin, and total polyphenol content.[2]

From Table 1 it can be calculated that more than 2 % of the mass of defatted raspberry seed powder is composed of water soluble polyphenols (including ellagic acid, ellagitannins, and proanthocyanidins).[2]

Our seed powder ingredients are a clean label ingredient, that add flavor, fiber, and health benefits in many baked goods applications such as bread, biscuits, cookies bars, etc.

A baked goods formulator, who produced the below bread photo, had this to say about formulating with our ingredients in bread:

***The flavor of the 1% loaf was sweeter than control with a fairly pleasant background flavor not easy to identify. The 4% loaf had a raspberry, pleasant flavor. This was surprising to the two of us who tasted it, since the powder by itself does not have a raspberry taste at all, at least to us. The powder by itself is not particularly pleasant tasting but in the bread it seemed to really improve the flavor.***

Further, A 2019 SPINS Trandwatcher2019 EXPO EAST RECAP began **by “While probiotics are still prominent, prebiotics and other fibers are earning more attention from consumers as part of a**



***broader approach to gut health. Our team at Expo East found fiber at the forefront of several innovative products in a number of categories.”***

Our Nutraberry berry seed flours are plant based, gluten free, and have additional health benefits of natural berry polyphenols, Omega Oils, Vitamin E (Please request presentation and technical data sheets).



The potential health benefits of raspberry seed polyphenols are numerous, including showing promise for effecting positive health benefits in the gastrointestinal tract, cardiovascular support, antioxidant capacity, and anti-inflammatory properties. For a more extensive review of the potential health benefits of raspberry seed ellagitannins, please request a copy of the white paper: Summary of Biological Effects and Quantitative Analysis of Raspberry Ellagitannins.[3]

#### References:

1. Towle, T.R., Composition and Potential Health Benefits of Raspberry Seed Oil. 2014.
2. Kosmala, M., et al., Chemical composition of defatted strawberry and raspberry seeds and the effect of these dietary ingredients on polyphenol metabolites, intestinal function, and selected serum parameters in rats. J Agric Food Chem, 2015. 63(11): p. 2989-96.
3. Towle, T.R., Summary of Biological Effects and Quantitative Analysis of Raspberry Ellagitannins. 2014.