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(54) **Titre : PROCÉDE DE TEXTURATION D'UN PRODUIT SOUS FORME NUTRITIONNELLE DENSE, SANS GLUTEN, VEGETALIEN ET CRU**

(54) **Title: RAW, VEGAN, GLUTEN-FREE, NUTRITIONALLY DENSE, TEXTURIZATION PROCESS**

(57) **Abrégé/Abstract:**

This invention relates generally to raw, vegan, gluten-free, nutritionally dense dehydrated food products -- particularly the hydrated organic binding ingredient process and product options, such as: brown rice(\*), sprouted quinoa, Irish moss or chia seed. Any of the aforementioned products, will be referred to as the "base-ingredient" from this point on. The base-ingredient is used to blend in with and bind, a variety of raw, vegan, gluten-free ingredients for exceptional nutritional yield, taste and texture, once dehydrated. The dehydration process takes place at very low temperatures (115 F or below) to preserve nutrients and enzyme potency. The hydrated food products create either a paste or gel, depending on which of the above products are used once hydration has been completed. Several raw, organic dehydrated food products can be produced, including but not limited to: breads, cookies, squares, bagels, pretzels, crackers, granola bars, breakfast bars, pie crusts, etc.

These dehydrated products are naturally gluten-free, (\*)raw, organic, vegan, dairy-free, non-GMO, no wheat, no eggs, no maltodextrin, no corn, no carriers, no artificial flavors or preservatives.

(\*)When heat is necessary to hydrate the organic brown rice (base-ingredient), the end product is then considered to be 75% raw, compared to the other base-ingredient recipe blends (for example, sprouted quinoa, chia seed or Irish moss), which makes the end product 100% raw.



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**DESCRIPTION:****Background of the Invention**

Considerable experimentation and research has taken place by the inventors to come up with recipes and a process that satisfies the taste, texture and body of conventional gluten-free, baked, non-vegan commercial products. The definition of a raw vegan diet can be loosened to include vegan diets with at least 75–80% raw foods (Source - Feb. 22, 2013: en.wikipedia.org. ) Raw organic food is either consumed “raw” or heated at temperatures between 105F and 115F and free from all and any chemicals, pesticides and herbicides. Vegan is defined as not consuming dairy, meat, fish or egg products. This means that their diet must consist of plant based food products that maintain the highest sources of nutrients. Unfortunately, “baked” products destroys much of the nutritional content in raw foods, leaving the consumer depleted of vital nutrients. Dehydration at low, controlled temperatures will keep the key nutrients in tact for the consumer, sustaining their diet and overall health without compromise. Gluten has been used traditionally in “baking” for its glue-like binding, thickening and flavoring properties. Moreover, it is found in most conventional baking flours (like, rye, wheat, barley), therefore present in almost all commercially “baked” food products available in mainstream grocery stores and restaurants. There are other flours with less gluten available, such as kamut and spelt flours. Although kamut and spelt flours have only trace amounts of gluten, it would be enough to cause issue with anyone suffering from conditions like celiac disease, wheat or gluten intolerances. There are a few truly “gluten-free” products available in grocery

stores; unfortunately, with many of them, the consumer must sacrifice taste, texture and nutritional value. Many times the product includes eggs and dairy, which doesn't work for those consuming a vegan and/or raw vegan diet. By utilizing a dehydration process for preparing foods (with aforementioned base-ingredients) it becomes a perfect solution for anyone following a 75 - 80% raw vegan diet or a gluten-free diet. Unlike baking, the dehydration process minimally affects the nutritional value of foods. Vitamin A (beta carotene) and C, carbohydrates, fiber content, potassium, magnesium, selenium, and sodium levels are not altered or lost in dehydration. Enzymes remain intact for absorption by the consumer so that they are actually getting the most benefit from their organic food, as well as enjoyment, taste and texture. Through dehydration, the calorie values remain the same but the fat and salt content is reduced.

### **Summary of the Invention**

The current invention is to address the needs of today's health conscious consumers. The goal is to provide food product(s) that **maintains highest available nutrient energy and enzyme levels through a dehydration process (without baking), without compromising, taste, texture or body of the food product. The inventors have created a food that is free of wheat, gluten-free, dairy-free, egg-free, sugar-free meat-free, chemical pesticides-free, herbicide-free and also free from unnatural chemical preservatives. All this (above) and it manages to be absolutely delicious!!**

To introduce a selection of improved, delicious and extremely nutritious food products made available to those who may suffer from very limited diets due to health issues, like celiac disease or gluten and wheat intolerances, and to those who want to simply improve their overall health. This process has managed to keep the important factors of dense nutrition, taste and texture in tact. The product has surpassed similar products in taste and texture through taste testing exercises. The comparison was to non-vegan, low-nutritional “junk” foods and this invention came out on top every time.

The inventors include methodology for creating a variety of dehydrated food products by utilizing base-ingredient. Several variations of raw, vegan, gluten-free food products can be made via this dehydration methodology, including but not limited to, cookies, crackers, granola bars, pie crusts, breakfast bars, pretzels, breads, bagels.

The base-ingredients all have considerable nutritional benefits. For example:

**QUINOA:** Quinoa is referred to as an ancient grain, (in actual fact it is a seed). It's been cultivated and consumed for thousands of years, and was considered sacred by the Incas. Yet for many people, quinoa is a new and novel food. It's a grain that sprouts or cooks quickly and easily, and delivers a warm, nutty crunch. It can be ground into flour, added to salads or enjoyed on its own as a hot breakfast.

**Quinoa Protein:** Proteins are made up of chemical building blocks called amino acids. Animal proteins such as meat and milk contain all of the essential amino

acids that a human body needs to survive and thrive. Plant-based foods contain selected amino acids in varying amounts, but in general do not contain all of the essential amino acids, and if you're a vegetarian, you're probably used to hearing that it's impossible to derive complete proteins from any single plant food. Quinoa puts an end to that myth. Quinoa, like soy, is a plant-based food that contains all of the essential amino acids your body needs and is an excellent protein source, according to the Global Facilitation Unit for Underutilized Species.

**Quinoa Dietary Fiber:** is high in indigestible carbohydrates, or fiber. Fiber, which passes through your digestive tract intact. It doesn't offer calories or nutrients, but does deliver health benefits. Fiber can decrease your risk of high serum cholesterol and constipation. It can also temper the spike in blood sugar that typically occurs after eating. According to "Advances in Food and Nutrition Research," quinoa's fiber has properties such as solubility and viscosity that are recognized as useful in benefiting human health. The USDA Nutrient Database says a cup of cooked quinoa contains 5.2 g of dietary fiber.

**Quinoa Nutrients:** Quinoa provides several vitamins. When you eat a cup of cooked quinoa, you consume 78 mcg of folate, 1.17 mg of vitamin E, 9 IU of vitamin A, and smaller amounts of the B vitamins thiamine, riboflavin, niacin and B-6. Quinoa is no slacker when it comes to minerals either. A cup of cooked quinoa provides 31 mg of calcium, 118 mg of magnesium, 281 mg of phosphorus, 318 mg of potassium, and smaller amounts of iron, zinc, copper, manganese and selenium.

**Other Benefits of Quinoa:** Quinoa is admirable for what it doesn't contain as well. It's a gluten-free grain that can be tolerated by those who have digestive

problems. It's lower in fat than many other protein sources, and cooking it is a snap. Just use a 2-to-1 ratio of water to quinoa and simmer until the grains pop open and become translucent, which takes about 15 minutes. (Source: <http://www.livestrong.com/article/512356>) It can also be sprouted within 2 or 3 days by hydrating by soaking in pure filtered water. The ratio used is usually a 2 to 1 ratio as well. Draining and rinsing daily with fresh water is a requirement in the sprouting process, until the sprout appears (like a tail) and reaches the desired length.

**“BROWN RICE:** is relatively high in soluble fiber, which makes you feel full for longer and reduces the chances of over-eating. Fiber also promotes intestinal motility and regular bowel movements, as well as balances blood cholesterol levels. Compared to white rice, brown varieties have a lower glycemic index, which means less dramatic impact on blood sugar levels and more balanced release of insulin. Brown rice contains many essential minerals, especially manganese, omega-3 and omega-6 fatty acids and most of the B-vitamins. One cup of brown rice contains about 215 calories, 5 grams of protein, very little sodium and no cholesterol.”(source: <http://www.livestrong.com/article/557482>

**“IRISH MOSS:** is 10 percent protein. It is also low in fat and rich in a variety of minerals. Irish moss is a rich source of both iodine and sulfur. Irish moss is also a good source of vitamin A, also known as retinol. Vitamin A is an antioxidant, protecting your body's cells from damage. Other essential vitamins and minerals

present in Irish moss include potassium and vitamin K.” (source: <http://www.livestrong.com/article/328421>)

**CHIA SEED:** “The omega-3 fatty acid content of chia seeds is even greater than that of flax seeds, making it a particularly good option for vegetarians and vegans who cannot get omega-3 from fish. The high antioxidant levels keep the seeds from going rancid, in addition to providing nutritional value. Chia is high in fiber, protein and minerals including iron, magnesium, zinc and copper.” (source: <http://www.livestrong.com/article/81835>)

“Promoters of chia claim the healthful nutrients in chia seeds help you lose weight and improve the balance of healthy fats in your blood. Omega-3 fatty acids in chia seeds may ease inflammation due to arthritis, and the high antioxidant value of chia may prevent some serious illnesses. Ten grams of dry chia seeds contains 2 g of protein and provides 9 percent of your recommended daily value of calcium. A 10-g serving holds 4.5 g of omega-3 fat and 6 g of carbohydrates, with 5.5 g of dietary fiber. One tbsp. of chia seed in 1 cup of juice leaves you satisfied for hours, says Baja Arizona Sustainable Agriculture.

Replacing some unhealthy animal fats with omega-3 fatty acids from fish or plants like chia increases the level of healthy fats in your bloodstream. More healthy fats in your blood reduces the risk of some cardiovascular diseases. According to a review by the Natural Standard Research Collaboration in 2009, two independent

studies of chia seed consumption showed no effect on weight loss. One study showed positive effects on risk factors for cardiovascular disease, and the other study did not. Historical records indicate no dangers from chia consumption, other than possible allergic reactions. Current research supports chia's reputation as an endurance tonic. Chia's protein lacks lysine, so you shouldn't make chia your only protein source.” Source: <http://www.livestrong.com/article/474747>

As a minimum, all of the base-ingredients are hydrated with pure filtered water and then blended with other nutritional dense, raw ingredients before dehydrating. The only exception is the organic brown rice, which is hydrated by using pure filtered water and heat before becoming a paste and blending with other ingredients.

All of the base-ingredients use a minimum ratio of ~ 2 to ~ 4 parts water to 1 part base-ingredient for the hydration process. This ratio is based on the desired hydration and texturization required for a given result and for consistency necessary for dehydration.

### **Brief Description of the Drawing**

Figure 1 is a flow chart illustrating the process by starting with the base-ingredient and working through methodically to create a finished, dehydrated, nutritionally dense, raw, vegan, gluten-free food product.

### **Detailed Description of the Drawing**

In the following description, the invention is utilizing hydrated organic brown rice as the base-ingredient, which will start the dough or batter as other ingredients are added, based on the particular recipe chosen. This invention is based on making nutritionally dense, organic, raw, vegan, gluten-free food products that are also delicious. This has been extremely challenging prior to this invention, since the majority of the “health foods” available in the market fall short in the “delicious” category.

As noted above, the hydrated base-ingredients are not limited to raw, vegan, gluten-free applications. They can also be used in vegan, gluten-containing formulations, non-vegan, gluten free formulations, or other formulations in accordance with the present invention.

The illustrated process (00) is initiated by obtaining (10) base-ingredient (e.g.: brown rice, quinoa, Irish moss, chia seed) . The correct measurement of base-ingredient and filtered water are mixed (20) in a clean mixing container. It is noted that the process scales to vat sizes suitable for commercial dehydration operations. Good results have been obtained for the model system with a mixture of approximately 25% - 35% base-ingredient and between 65% -75% filtered water by weight (more precise percentages depend on the specific base-ingredient used). However, a higher or lower percentage of water can be used, or the hydration process time and other parameters can be varied, depending on the need for drier or wetter dough. Note: only when using brown rice as the base-ingredient, the water

is then heated so that the rice absorbs the water (20). The heating process takes ~ 30 minutes and the water would be at the boiling point for approx. 15 minutes and then turned down at a lower temperature for approx. 15 minutes, until most of the water has been absorbed. Then the rice and water mixture is left to cool to room temperature before creating the paste (30). With all other aforementioned base-ingredients, cool water is used (between about 13°C - 21°C) and the mixture is hydrated in the same temperature range for at least 30 minutes.

For application purposes, the inventors will feature the brown rice as the Patent example (base-ingredient). Most of the initial thickening and hydration occurs after the heated rice has cooled and additional water is combined. Preferably, the mixture then has the mouth feel of whipped, mashed potatoes, i.e., it is very smooth and creamy. The precise texture of the paste and water content, as noted above, can be varied to provide different characteristics to the resulting batter or dough. The ratio of the rice/water may vary, depending on the moisture content desired in the resulting dough. Pie crust, being a relatively dry dough product may result from a rice/water ratio that is less hydrated than one designed for cookies. For example, the mixture may be refrigerated overnight before being incorporating other ingredients to become a dehydrated product. Specifically, the brown rice paste product can be combined (40) with other ingredients to make a gluten-free or vegan batter or dough. Though the exact recipe will vary, these other ingredients will typically include seeds, brown rice, quinoa, nuts, legumes, potatoes, tapioca, and amaranth or powdered vegetable matter. These ingredients can be mixed in a suitable vat to form a batter or dough of the desired consistency, becoming the pre-formed product (50) and then dehydrate (60) to become the finished product.

The base-ingredient paste or gels can be used in the same manner as gums, eggs, and extra fats that are conventionally substituted for the qualities that gluten offers. The base-ingredients act like emulsifiers which in traditional “baking” brings the water and oil together and keeps them from separating for a time period sufficient for forming the desired baked product. That is, the dough or batter is typically combined with other ingredients of a recipe (e.g., sugars, flavorings and the like) and then formed to the desired size and shape for baking.

This invention is incredible in that it has emulsifying properties, without incorporating eggs, wheat, gluten, dairy or any animal products. There is no need or requirement to add chemical preservatives or chemical taste enhancers, since the food is dehydrated and naturally delicious. This invention allows for a variety of amazing food product creations, which all provide dense nutrient content from real, unadulterated, organic foods.

The base-ingredients and dehydration process can be used to create (but not limited to): cookies, pie crusts, breads, bagels, pretzels, crackers, chips, breakfast bars, granola bars, squares. This invention has created a new doughs with non-traditional ingredients that reproduce the characteristic flavors and the physical and the natural qualities of traditional products containing gluten, thus making gluten-free, wheat-free, and vegan or dairy-free delicious foods possible, and on a commercial level. This invention does NOT require baking as part of the process; instead food is dehydrated, allowing all of the valuable nutrients to stay intact for better health of the consumer.

## **CLAIMS**

What is claimed:

1. A method for use in making dehydrated products, comprising the steps of:  
hydrating a base-ingredients (i.e. brown rice(\*), chia seeds, quinoa or Irish moss)  
to obtain a hydrated base-ingredient; and using the base-ingredient as an emulsifier  
and texturizer in preparing a dehydrated product.
2. A method of Claim 1, wherein said step of hydrating comprises forming a  
mixture of about 25 - 35% whole (unground) base-ingredient and 65 - 75% water  
by weight and allowing the mixture to stand a length of time so that water is  
absorbed by the base-ingredient. (\*) High heat is required only when using brown  
rice as the base-ingredient to hydrate @ ~ 212 degrees F, for approx. 30 minutes  
and then left to cool to reach room temperature.
3. A method of Claim 2, wherein said step of hydrating comprises allowing the  
mixture to stand at a temperature between about 13°C and 21°C for at least about  
30 minutes.
4. A method of Claim 3, wherein said step of hydrating includes allowing the  
mixture to stand in a minimal light environment.
5. A method as set forth in Claim 1 , further comprising the step of combining the  
base-ingredient with gluten-free components to create a dough.
6. A method as set forth in Claim 5, wherein said dough comprises an  
emulsification wherein water is sequestered in said emulsification, substantially  
free from pooling, for a time period sufficient for formation of said dehydrated  
product.

7. A method as set forth in Claim 1, wherein said base-ingredient comprises a gel or paste upon hydration.
8. A method as set forth in Claim 7, wherein said gel comprises a naturally occurring carbohydrate network that allows for water binding, texturization and emulsification within gluten-free or vegan dough products.
9. A method as set forth in Claim 7 wherein said gel or paste comprises a hydrocolloid (a naturally occurring quality) that acts as an emulsifier to combine oil and water and prevent their separation for a time period sufficient for the formation of gluten-free or vegan dehydrated products.
10. A method as set forth in Claim 5, further comprising the step of combining said dough with stabilizing ingredients to provide a desired structure for gluten-free or vegan dehydrating.
11. A gluten-free dehydrated product formed by the process of any one of Claims 1-10.
12. A vegan dehydrated product as formed by the process of any one of Claims 1-10.
13. A method as set forth in Claim 1, further comprising the step of combining the base-ingredient with gluten-free ingredients to produce a raw, vegan, gluten-free dehydrated product.
14. A dough, batter, paste or dehydrated product, comprising:  
one of the following base-ingredients: hydrated brown rice, hydrated chia seeds, hydrated quinoa or Irish moss.

Figure 1

