

# Instructions for Making Powdered or Tea Extracts, Version 2

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## Introduction

Powdered extracts are simply liquid extracts that have been dried in a home food dehydrator or on a commercial scale, in a spray dryer or freeze dryer. Commercial powdered extracts can be made from a tincture (hydro-alcoholic extract) or an herb decoction.

Powdered extracts are widely used in the practice of traditional Chinese medicine, and have been for centuries. They are convenient (you can make an instant tea), stable (up to 3 year shelf life), and concentrated (4:1 up to 10:1 are common, depending on how much carrier you stir in). The concentration of the tea

You can determine the *extract ratio* by weighing the initial herb amount used and then weighing the finished extract product. Divide the initial herb weight by the finished extract weight. For instance, if you started with 16 ounces of herb (1 lb) and ended up with 2 ounces of finished extract, you would have an 8:1 extraction ratio—quite potent. To take it one step further, if you mixed 3 grams (about 1 tsp) of the finished extract into hot water and then drank it, you would be getting the equivalent of the active compounds from 24 grams of the original herb (on a dry-weight basis)! See the handout on dose for more details on proper doses for different situations.

## Overview of the Process

These are the most usual steps for making a powdered extract with water.

- Simmer or boil the herbs (dried or fresh) for up to 1 hour in an excess

- of pure water (about 20 parts water by volume to 1 part herbs by weight)
- Strain off (or press out if you have a hydrolic press) the liquid and compost the marc
- Simmer down the tea to a tea concentrate—to about 1/20<sup>th</sup> of the original volume
- Stir in enough “carrier” to absorb the liquid and end up with a soothie consistency
- Pour the herb “batter” into the lightly-oiled fruit leather inserts in a standard home dehydrator
- Dry on low heat—about 95-100 deg. F (make sure your dehydrator adjusts) for a few hours to overnight until dry
- Break up the wafer and eat the herb “chips” or stuff into a blender and powder (VitaMix even better; can also use a coffee grinder)

## Dried teas

Hot water breaks down cell walls and extracts the more tonic principals (minerals, giant-molecular-weight sugar molecules—polysaccharides; protein-bound polysaccharides, etc.). Recent research shows that decocting herbs can extract almost any kind of plant constituent group, even though it is very lipophilic (oil-loving and supposedly not water-soluble). That's because although the active molecule in the plant may be big and bulky and so not very inherently water-soluble (water molules are small and polar with a + and – side). So the process of making an extract renders the herb active compounds much more bio-available and absorbable. Remember that we can't digest plant cells very well because they are enclosed in a cell wall consisting of cellulose and lignan. These are the structural polymers of plants. The extracts are useful for long-term (3-9 months or longer) strengthening of the immune system, adrenal and hormonal system, nervous system, blood system, and other parts of the body and other uses.

## More Specific Instructions

1. Place the dried herbs in a large pot in the ratio of 1 part herbs (by weight) to 15 parts of water (by volume), depending on how dense and bulky the herb is. For instance, 1 ounce of dried (and powdered if possible) herbs to 15-20 ounces of water. Better to use dried herbs and weigh everything on a "dry weight basis" then you can calculate the extraction ratio which will tell you how concentrated the finished extract powder is.

The reason for always using dried herb is because you are always comparing "apples to apples," all dried herbs are mostly devoid of water which is an unknown quantity because plants vary in their water content. Many fresh plants will also start losing water after they are picked and stored in the refrigerator for instance making it even more difficult to calculate the finished extract strength.

I recommend trying this process out with the smallest possible amount of herb in case something goes wrong. For instance, try a moderately heavy dried root like astragalus (immune), ashwagandha (calming adaptogen), or dried ginger rhizome (warm up digestion and relieve upset stomach, nausea). Start with about 28 grams (1 ounce) of dried herb to about 15 ounces (about 2 cups) of filtered water.

2. Simmer for 1-2 hours with the lid off, until a dark, strong tea is created and the amount of water is reduced by at least 1/4; let cool until warm.
3. If you don't mind that the finished extract powder has some insoluble herb particles in it when you make an instant tea then you can use Method A. I usually don't care. The particles typically migrate to the bottom of the cup, or I just swallow them because they are soft by the time they have been cooked. This kind of extract powder will be the most potent (about 1/3 more constituents in

the finished extract powder) because you are saving all of the herb instead of drying the liquid that has the constituents that come out into the tea water.

Of course if you are packing the extract into "00" caps (that can contain about 400-500 mg of the extract) then herb particles don't matter because they are inside the capsule.

If you want to make an herb powder that is completely soluble in water leaving no particles, for an instant tea, then use Method B.

### Method A

4. Blend up the warm or cool tea + marc (boiled herb) until creamy. The liquid should be a smoothie-like consistency. If it is too watery, then simmer more of the water off because then it will take too long in the dryer to become completely dry.
5. When the "tea concentrate" (the dark finished tea + marc) is the right consistency, pour the "herb batter" into the lightly-oiled (olive oil) fruit leather trays in a food dehydrator and dehydrate at about 95-98 deg. F. which might take an hour or several hours.
6. Pull off the "herb leather" wafer, break it up into pieces and put into a coffee grinder (or blender with a pint canning jar screwed onto the blender base with the blades). Blend or grind until you have a fine powder.
7. Weigh the finished extract tea powder. It should weigh about the same as the starting dried herb because you still have all of the herb left and you simply got rid of all the water.
8. Say the above example weighs 28 grams at the end. Then  $28/28 = 1$ . So you made a 1:1 tea concentrate. But say after the boiling is done and it has cooled, you took out about 1/2 of the cooked herb, then blend and dry. Then you will end up with all of the constituents of the original herb

concentrated in only 14 grams of tea powder. Then you have made a 2:1 tea concentrate powder. That means that if the traditional daily dose of the herb is about 10 grams of say astragalus as a tonic herb, instead of having to pack 10 grams into "00" caps = about 20 capsules or more ("00" capsules hold about 400 to 500 mg), you would only need 10 capsules/day (5 twice daily) to get the same concentration and effects. What if you left only 1/4 of the marc at the end for the cooking/concentrated process, then blended and dried it? Then the finished product would be a 4:1 extract and you would only need to take 5 capsules/day to get the same amount of active constituents and effects as 20 capsules of the tea extract made by retaining all of the original cooked herb. Much better.

9. Remember that your tea concentrate (or instant tea concentrate) will keep in an airtight jar for up to 3 years, and many, if not most of the constituents will be stable. And don't forget that the concentrate is much better absorbed and assimilated (maybe up to 2 x) than if you just powdered the original dried herb and packed into capsules. Some herb products on the market are just that....dried herbs ground up to a fine powder and packed into caps or pressed into tablets.

If you are buying an herb or herb formula in capsule or tablet form, make sure the product contains extracts (and they should indicate the extraction ratio, such as 4:1 or 5:1) and not just ground up herbs. You will often get more value, but not always. When you make your own and you use the cooked herb for the carrier (the herb absorbs the liquid tea concentrate and "carries" the active constituents, giving the extract body, as I have outlined above, then you will get much more potency and value for your herb dollar. However, some companies may say they contain a 5:1 herb extract, but the extract can have added "fillers"

such as maltodextrin and so you may only be getting about 1/2 of what you think you are, or less! This a fairly common practice unfortunately.

10. \*\*A note here. Let's recap the benefits of making dried teas. For one thing when you pack the dried tea powder into capsules you only have to take a little more than 1/2 the amount to get a similar effect. If you are swallowing capsules daily, then having to take 4 instead of 8 is a real benefit, especially over the long-term for chronic ailments, or for tonic formulas with astragalus, reishi and other herbs which are usually taken for months at a time. Because you have broken down the cell walls of the herb and released a lot of the active compounds into the tea, these constituents will be a lot more bioavailable as well. Plus after boiling you will kill any microbes that may have been on the original dried herb. I happen to know that high "micro" counts in dried (even organical) herbs is common.

Lastly, if you remove most all of the marc after boiling well and getting a dark tea (make sure to squeeze out any liquid you can in the wet marc you remove), say, only about 2 grams of the marc back in, then blend (in a 1/2 pint jar with the blender blades screwed onto it, and dehydrate for the first trial, the finished tea extract will then be 10/2 = 5:1. That means the finished extract contains about 5 x as much active constituents as the original herb and is much more bioavailable. If you are going to make the extract this concentrated, you are better off starting with more water and more herb.

For instance if you want to make the 5:1 extract, start with 4 x as much water and herb...40 grams of herb in 160 mL of water. This is about 1 and 1/2 ounces to 5 1/2 ounces of water.

After you try it out and all works well, then you can make much larger

volumes, for instance you could round down and just use the formula:

\*\*1 ounce of herb to 5 ounces of water, so 8 ounces of herb (1/2 pound) to 40 ounces (5 cups) of water. If you like the extract and you are taking it frequently, you can start with 1 lb of herb to 10 cups of water. Simmer it down to a thick liquid as before and use method A or B to make a powder.

Note: remember that the amount of water you add to the initial tea-making process will not determine the extract ratio such as 5:1. Only the amount of herb you leave in the tea concentrate at the end after extracting most of the herb's constituents will determine the extraction ratio. At the end of the day you can figure out the extraction ratio (and thus how concentrated the finished extract is) using this formula:

(amount in grams or ounces of the herb you started with) / (amount of dried herb concentrate in grams or ounces you have at the end of the process, the finished product)

For instance if you started with 8 ounces of herb and you finished at the end with 2 ounces of dried tea extract then the extraction ratio is 4:1, which is one industry standard.

The point here is that if you want to make a much stronger extract, take more 1/4 up to 3/4 of the cooked herb out of the pot after it is thoroughly boiled and you have a dark tea. Then simmer down until not much water is left, but enough to blend what herb you left in to make a smoothie-like consistency. Then dehydrate as above. Then you can recalculate

11. Storage: store the powder in an air-tight canning jar. You can tape a water-absorbant pad inside the top lid to prevent water-buildup if you find your

extract is absorbing water and becoming a hardened mass. This may happen over months if you live in a place like Florida with a high ambient humidity.

#### Method B

12. Remove most or all (if a stronger extract is desired) of the boiled herbs, press all the water out of them that is possible; add this water back into the pot with the original tea.
13. Set the marc (spent herb) aside. At this point you could do a "double extraction" by tincturing the marc in 80%/20% 190 proof organic alcohol (for instance you can buy "Extractohol" 190 organic ethanol on Amazon or other vendors). For the double extraction, add 1/2 tsp/pint of liquid tea concentrate of vitamin C powder or crystals to help preserve the liquid and prevent it from fermenting over the week of storage it takes to make the tincture maceration. Store in the refrigerator in air-tight jar. After a week then press out the tincture and add the two liquids together. See my book Medicinal Mushrooms, the Essential Guide for pictures and more details.
14. Continue simmering the tea with the 1/5 marc left in the pot; simmer for 1-2 more hours until the water level is reduced to about 1/20<sup>th</sup> of the original volume, until residue is thick, but not a paste; let cool until warm.
15. Blend this strong tea with a *carrier* until a creamy consistency is achieved. You should add a little at a time and wait for 15-20 minutes until the carrier powder absorbs some of the liquid.

*Note:* a carrier is an herb or substance that has some insoluble or soluble fiber—when it is blended into the concentrated tea, it provides nice "round" cells that enable to resulting completely dried tea to be powdered. Without a carrier, many herbs (especially roots and mushrooms) have so much sugars that the resulting

completely dried tea concentrate will end up sticky, making it difficult to produce a nice smooth powder. After much experimentation, I've found that cornstarch or kudzu powder is about the best carrier. Maltodextrin is often used in the production of commercial extracts, as is lactose and maltose. Maltodextrin is often derived from GMO starch and is very water-soluble.

<http://www.productsforhealth.com/>

<http://www.ultimate-weight-products.com/page/UN/CTGY/miracle>

<http://www.miracleexclusives.com/aboutus.html>

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16. Pour this "batter" into the lightly-oiled (olive oil) nylon fruit leather trays of a food dehydrator and dry at around 90 to 100 degrees fahrenheit until completely dry.
17. Break this wafer up and eat pieces the size of a quarter to a silver dollar 2-3 x daily as a dose. Or powder the wafer in a blender and place into "00" caps or place into jars and blend ¼ to ½ tsp in tea or water. A dose of the extract powder is usually 2-4 grams/day, depending on the severity of the deficient state and the nature of the individual. A single "00" cap will hold about 500 mg (1/2 gram) of the extract, so take 2 for each gram of extract.

#### Hints

1. Add licorice, orange peel, etc. for flavor and sweetness, especially if the herb being extracted is bitter.

#### To order tonic herbs:

Mountain Rose Botanicals  
[www.mountainroseherbs.com](http://www.mountainroseherbs.com)

Pacific Botanicals (Grants Pass, OR)  
[www.pacificbotanicals.com](http://www.pacificbotanicals.com)

Asia Naturals  
<http://drkangformulas.com>

To order food dryer:  
American Harvest  
800 288-4545

Here are some sites for ordering dryers, blenders, juicers, etc.