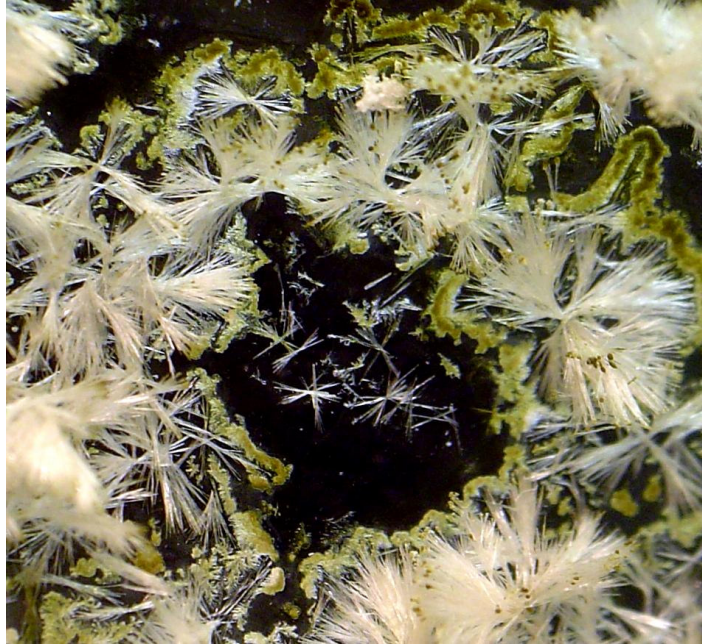


## How to guide for extracting, refining and growing salvinorin crystals

April 21, 2006 by Sphere



Magnified by approximately 10X and cropped out of a 1.2 mega pixel photograph. These crystals formed into bright white structures with a small amount of waxy lipid impurities surrounding them.

1. Extract finely crushed *Salvia divinorum* leaf using the solvent of your choice. I like to use zero degree F. chilled acetone because cold acetone dramatically reduces the amount of waxy impurities extracted. Whatever solvent you choose, use just enough to completely cover the crushed leaf in a ceramic or stainless steel bowl with an extra inch or more of solvent above the leaf.

If using chilled acetone pre-chilling both the leaf and the bowl to be used helps keep the acetone cool throughout the extraction. When using chilled acetone extract the same batch three times over for 3 to 4 minutes each time and combine the acetone from each extraction in one container. If you go over 4 minutes don't worry but try to limit the total time the leaf is in the cold acetone to no more than 12 minutes total. Extracting the leaf in three separate 3 to 4 minute segments is important to incrementally wash more and more of the salvinorin off of the leaf with fresh cold acetone each time.

Note: Chilled acetone extractions produce the cleanest extract requiring the least amount of work to purify the extract but the amount of time the leaf is in the solvent must be limited to reduce the amount of waxy impurities extracted. Reducing the amount of time the leaf is in the solvent may leave a portion of the salvinorin behind but can be recovered by re-extracting the previously extracted leaf for a longer period of time using room temperature acetone which won't produce nearly as pure an extract and as little as 5-10% additional salvinorin, sometimes as much as 20% more.

If using room temperature acetone, 99% isopropyl (IPA) or 95% ethanol/190 proof drinking alcohol to extract the leaf stir the leaf into the solvent and soak it for as long as you like but when using isopropyl or ethanol they should be used at room temperature or higher if you can safely warm them because warm alcohols are more effective than room temperature. Be sure to stir the leaf the whole time it is in the solvent for at least five minutes each time you extract the leaf and extract the same leaf four times over for highest yield and save the fluid from each extraction in one container to be evaporated later.

2. After you are done extracting the leaf using chilled acetone, 99% isopropyl or 95% ethanol remove all bits of leaf you can from the fluid and then put the container in the dark and wait 24 hours to allow the super fine micron sized pieces of leaf to fall to the bottom of the bowl of solvent you have poured off of the leaf (after each of the multiple extractions to the same leaf are done).

3. Once the sediments which have fallen to the bottom of the bowl are removed by lowly pouring the solvent off of them then evaporate the extraction solvent in a large flat pan to increase the surface area exposure of the solvent to the air which will cause the solvent to evaporate much faster. Be sure to keep the solvent in the dark the whole time you are evaporating the fluid as UV light exposure can destroy salvinorin very quickly while in solvents.
4. After evaporation you can begin purifying the dark waxy extract through multiple washes of the solids with naphtha (naphtha washes are not absolutely necessary and can be skipped but increases total yield). Just pour the naphtha directly into the evaporation container and use a spoon or something to completely dissolve and work all of the extract solids into as fine a consistency as you can get it by breaking up all of the clumps of extract until nothing but a smooth liquid filled with very small particles remain. Be sure to scrape all of the films off of the side of the evaporation container too.
5. Pour all of the naphtha and particles from the evaporation bowl into a tall glass and wait a couple of hours or more (8 hours if several ounces of naphtha have been used) for the particles of crude salvinorin to settle to the bottom of the container or glass before carefully pouring the naphtha off and leaving them behind in the container for further processing.
6. After all of the naphtha has been carefully poured off of the precious solids in the bottom of the glass wash the extract solids with another ounce or more of naphtha and keep doing this over and over (waiting for the particles to settle each time) until the naphtha no longer continues to take on much color. After the naphtha has become ineffective at removing more of the waxy impurities it will no longer take on much more color. At this point dry the extract and begin washing it with small amounts of 99% isopropyl in a small shot glass (using no more than 25 ml of IPA per wash for a 100 gram extraction of leaf) until the salvinorin solids become a light green to white color, waiting an hour or two after each wash before pouring the 99% IPA off of the salvinorin particles which settle in the bottom of the glass. Waiting hours if using more than 25 ml per wash as it takes longer for the particles to all settle to the bottom if a larger volume of IPA is used.
7. Once I get down to fairly clean extract with most of the dark impurities removed to confirm that none of the fine sediments from the leaf remain I then completely dry the extract so that none of the isopropyl remains and dissolve all of it back into acetone at a ratio of about 10 mg of dried extract per ml of acetone which can hold up to 23 mg per ml of fluid when at room temperature. I then set it aside in the dark for 12 full hours or more and come back later to see if any of the fine sediments from the leaf remain in extract as evidenced by finding them in the bottom of the glass. If they do, I pour the acetone off of them and then completely evaporate the light yellow to dark green acetone (depending upon purity) so that nothing but dry salvinorin remains. As the acetone evaporates down to the last few milliliters intricate salvinorin crystals might form or may just become a solid mass of crystalline material in the bottom of the glass, depending upon the size of the evaporation container and ratio of salvinorin per ml of acetone. Because of this I have added one more last step to help assure nice specimens of crystals will form.
8. Last step, after making sure all of the fine sediments from the leaf are out of the extract I take about 100 milligrams of the dry salvinorin powder and completely dissolve it into about 100 ml of room temperature acetone, once dissolved pouring all of the salvinorin laden acetone into a small three to four inch diameter custard or spice bowl for normal room temperature unaided evaporation in ambient air (in a dark cupboard) without the aid of extra airflow or a fan.

After about 12 hours 100 ml of acetone in a 4 inch diameter bowl will usually be completely evaporated with nothing but small salvinorin crystals remaining in the bottom of the bowl which may or may not be large enough to view without magnification, depending upon many variables which I have not found control over yet. Below is a photograph of some very nice salvinorin crystals which formed out of some light green colored acetone, the extract wasn't completely pure or free of the waxy impurities causing the crystals to appear yellow, as seen here.



Magnified 10X. This is a small portion of the crystals which formed inside a 4 inch diameter custard bowl. Depending upon the purity, crystalline salvinorin can vary from dark green through yellow and all the way to a colorless white appearance if extremely high purity.

To grow large crystals the key is to use the right ratio of high purity salvinorin dissolved into the right amount of acetone evaporated in the right sized bowl. Too much salvinorin and big crystals will not form, too small of a bowl and they form a solid mass. Crystals don't always form this nice, but one out of ten times they do as this attempt did. I have done this many times and these are some of the most gorgeous of the ones I have grown and larger than most of the others. These crystals were produced by dissolving about 100 mg of salvinorin into 100 milliliters of acetone evaporated in a four inch diameter custard bowl.

#### Notes about solvents:

The solvent of choice for extracting salvinorin is reagent or technical grade acetone. Some hardware store acetone products can be used without a problem if they are labeled to contain only acetone and do not have benzene as an additive. Additionally, if using hardware store acetone to extract the leaf I would never consider using the extract to enhance leaf unless it has been cleaned to a very light green or white color using 99% isopropyl which will wash away slight amounts of oil contamination which may be in the acetone just as effectively as it washes away the fatty lipids from the leaf.

Naphtha AKA shellite is used to dissolve the waxy lipids and remove chlorophyll from the extract solids because salvinorin is virtually insolvent to this solvent. 99% isopropyl can be used after the naphtha washes to remove additional impurities the naphtha cannot effectively dissolve but will remove close to 1 milligram of salvinorin per milliliter of fluid so use it very sparingly. You can skip using naphtha all together and go straight to cleaning the extract with medical grade 99% isopropyl and be assured of a very clean extract but at a cost to initial yield. However, the salvinorin lost to the isopropyl can be recovered later as explained below.

When using either naphtha or isopropyl to remove fats or impurities from the extract solids be sure to allow enough time for the ultra fine particles of salvinorin to all settle to the bottom of the container before pouring the fluid off of them. The larger the volume of fluid used for each wash of the solids the longer it will take for the particles to settle. If using 8 ounces or more of naphtha it is a good idea to wait overnight or at least 8 hours before pouring the fluid off of the extract solids in the bottom of the container.

What is naphtha? When crude oil is heated and the different chains are pulled out by their vaporization temperatures, the chains in the C<sub>5</sub>, C<sub>6</sub> and C<sub>7</sub> range are all very light, easily vaporized, clear liquids called naphthas. Naphtha is used as camp stove fuel, flint spark lighter fluid, charcoal lighter fluid and VM&P naphtha. Camp stove fuel almost always has oil added to it as a rust inhibitor making it unsuitable for working with extracts. Most types of naphtha lighter fluid are clean enough to use as long as you pour every drop of the naphtha off of the extract when finished washing it. Charcoal lighter fluid is usually just naphtha but can also be a mix of other flammables and may or may not be suitable for working with extracts. I have found that VM&P Naphtha sold at many paint and hardware stores is usually clean and will not leave residuals after evaporation. Before using any solvent to clean your extract evaporate at least a ounce of it in a clear glass bowl and check to see if anything remains, if nothing remains nothing will remain in your extract, especially considering that the naphtha is always poured off of the extract instead of being evaporated down.

If cleaning the extract solids from a room temperature extraction of a full kilo of *Salvia divinorum* leaf you may need at least a quart of naphtha or more before you are done, half as much if having done a chilled acetone extraction. The extract from room temperature extractions has far more of the dark waxy impurities which requires a substantial amount of work to remove but is well worth the effort due to the high yield. If you use naphtha be sure to follow up by cleaning the extract solids with a few ml of 99 percent isopropyl to remove anything that the naphtha may have left behind. For a full kilo of leaf I usually need to wash the solids at least three or more times with about 25 ml of isopropyl per wash, up to seven washes for extremely high purity. Washing the extract with this much isopropyl will cause a fair amount of the salvinorin to be carried away with it but at least 75 percent of it can be recovered later if you completely evaporate all of the isopropyl used to wash the extract and reprocess it the same way you have with the extract, starting with washes with naphtha and then isopropyl.

**Warning:** Do not attempt to smoke salvinorin crystals. This material is far too potent to be used as a drug requiring extremely sensitive and expensive analytical measurement equipment accurate to within a tenth of a milligram to make a half mg dose which for most individuals is far too intense for any kind of positive entheogenic experience when at this purity and difficult to properly vaporize.



7-45X Zoom scope used to photograph salvinorin crystals