

The Lazy Mans Guide to Extracting Mimosa Hostilis Root Bark

A guide for a new quick and easy method of extracting MHRB

by Sphere 2006

The short story about this tek: This was the first MHRB tek on the net for extracting the desired alkaloid from MHRB using broken or solid pieces of root bark without the need to powder the material. If you choose to powder the root bark the waterless de-fat method without the need for acid uses only solvent and has proven to work well with any kind of powdered alkaloid bearing root bark.

Advantages: Compared to earlier A-B process teks requiring acid and a pH meter or papers the extraction techniques used in this tek require far less time and work as well as reduces the need to buy much of anything extra other than perhaps NaOH and solvent. If you have good plant material which contains the alkaloid you seek this tek will assure success because you can continue working with the root bark which stays in the NaOH adjusted or high pH basified water along with the solvent used to soak up the alkaloid the entire time you are extracting the material until you get what you are after. No need to powder the root bark, just break into small pieces and extract whole, no need for the use of a separation funnel or baggies modified to act as one.

Extraction yields from one pound of inner MHRB: First extraction cycle: 1 gram in 2.5 hrs. Second extraction cycle; 4 more grams 7 hours later, third extraction cycle; 2.5 more grams 38.5 hours later for a total of 7.5 grams in 48 hours of soaking the root bark in the basified water with multiple extractions to the same plant material performed as outlined below.

Equipment: 5 liter ceramic mixing bowl, potato masher, 2000 ml measuring cup, large flat glass baking pan, fan, clean VM&P naphtha; hardware store (test it by evaporating a cup of the solvent in a glass bowl to see if a residue is left over), NaOH sodium hydroxide; online auction, often listed as Red Devil Lye.

Foreword: At the date of this writing this process is much simpler than all of the other extraction teks for Mimosa hostilis root bark I have seen. All you need to do is submerge whole broken pieces of root bark into water which has had a measured amount of NaOH/sodium hydroxide dissolved into it, wait an hour, add naphtha, stir for a few minutes and then pour the naphtha off into a collection container for evaporation. In essence that is all there is to this tek. No need to fuss with acidifying the root bark for a defat, no pH papers needed, no separatory funnel, nothing fancy yet this is a very effective technique with higher yields than any other method out there yet.

The tek at its most basic:

Dissolve lots of NaOH/lye in water...

Add pieces of broken root bark, wait an hour or two hour to soften and mash into fluid...

Add naphtha and stir a few minutes... Separate and evaporate...

Here is a more detailed explanation of the extraction method using a half kilo of root bark:

Break 400 to 500 grams of Mimosa hostilis root bark, whether inner, outer or whole root into small enough pieces all of it will fit into a large ceramic or stainless steel mixing bowl with enough room left over to only fill the bowl half way to the top. Next, completely dissolve 200 grams of NaOH/sodium hydroxide into 2000-3000 ml of tap water and add to the root bark.

Wait an hour for the lye/sodium hydroxide to soften up the root bark and then using a stainless steel potato masher stir and mash the base adjusted water into the pieces of root bark for 20-30 minutes and then pour in 250+ ml of naphtha into the bowl and mix for another 20-30 minutes. After you are done mixing the root bark let it sit for a few minutes so that any emulsion which might have stirred up into the solvent to settle out and then just pour the majority of the solvent off of the top of the basified aqueous mix into a large flat glass baking pan and evaporate with a fan blowing air across the top of the fluid to net 600-1000 mg of alkaloid in just a few hours.

Is there any easier process to extract and isolate that much alkaloid in two to three hours from a pound of root bark? Although the initial yield will be much higher if extracting powdered root bark which takes much less time, whole or broken root bark can also provide high yields if you wait two or three days for the hard strips of bark to turn into a mush as the NaOH breaks it down further and further over time in the basified solution for a higher extraction yield. If waiting 24 hours and performing a single extraction the broken root bark the basified aqueous mix will still need to be extracted over again three or more times to get more of the alkaloid out. That's it, a very simple process with yields others have reported to be much higher than the more often used A-B or acid to base teks. With dried Mimosa hostilis root bark the alkaloid is already in the form of a salt as is and there are so little plant fats many people simply do not bother with a defat cycle so going straight to base chemical works out very well with this material.

Dry defat (no water) without acid

A defat process is not normally needed for MHRB due to its very low fat content. However, if you desire to do so here is a way of removing fats without the need to go through an A-B cycle and without the use of water.

The alkaloid is already in the form of a salt when in the dried root bark and does not require acid and water, just directly defat the powdered root bark with solvent now.

Although Mimosa hostilis root bark extracts fairly cleanly with minimal plant fats if you want to remove what little of it there is you can do so without adding an acid to the powder with water by just mixing the dry (no water present) root bark powder into enough naphtha to allow all of the powder to be freely stirred up into the fluid for a few minutes and then filtered out of the naphtha which is then discarded. For an extreme defat heat the naphtha to near its boiling point and then stir the powder into it but be sure to pour off every drop of naphtha you can when done and throw that naphtha away, you should not use it for anything more in the process. Once you are done with the solvent defat the root bark powder is then dumped into the basified mix, as is and wet with naphtha if you like, or after drying. No harm adding root bark with a little naphtha still soaked into it from the defat process because you are just going to end up pouring more naphtha in anyway. This "dry" defat without water works very well to remove what fats there are but is

not really needed if extracting the plant material at room temperature.

Note: When the solvent was evaporated from the defat process there was no discernable amount of alkaloid present, only orange fats. When this tek was first posted on the net on another forum someone speculated that these fats might contain the compound from MHRB which will make the alkaloid active when swallowed without the need for MAOI. I have not confirmed this report.

Step by step guide for the above using a pound of root bark.

If you want to use more or less root bark fraction or multiply out everything specified in this tech for smaller or larger amounts:

- 1.** Break a pound or 454 grams of dried of *Mimosa hostilis* root bark into small pieces so that no piece is longer than three inches allowing them to all nicely fit into the bottom of a large 5 liter mixing bowl with lots of extra room left over and set to the side.
 - 2.** Prepare some basified water by fully dissolving 200 grams (~13 measured tablespoons full) of NaOH/sodium hydroxide lye powder into 2 liters of tap water in a large measuring cup.
 - 3.** Add the basified water you just made to the bowl of broken root bark, stir for a few minutes and set aside for two or more hours (longer is better).
 - 4.** After soaking the root bark in high pH NaOH adjusted water (which is near a pH of 13.5 or more) for a couple of hours or more take a stainless steel potato masher and start mashing the broken root as best you can in the basified water for 20-30 minutes (longer is better).
 - 5.** After you are done mashing the root bark for a few minutes (which will still be fairly stiff if only soaking 2 hours) then add 250 to 400 ml of clean room temperature naphtha (more makes separation from the soup easier) and stir the solvent into the aqueous mix for 20-30 minutes (longer is better).
 - 6.** After mixing the naphtha into the bowl pour as much of the solvent as you can easily get off of the top of the aqueous mix (naphtha floats on top in water as a distinct layer) into another container, leaving all of the dark soup behind which will be extracted over again later. Be sure not to allow any of the dark water or any of the bubbly emulsion which may have formed in the solvent to go out with it, being careful to only pour out just the solvent alone without any bubbles containing NaOH or water, leaving everything else behind in the bowl.
- Note:** If you have so much emulsion that the solvent is half filled with it wait a few minutes to an hour for it to settle out so you can get more of the solvent out.
- 7.** Take all of the clear naphtha without any water or bubbles in it you have carefully separated from the basified mix of water and root bark and pour all of it into as large a flat glass container you can find for evaporation. Using a fan to blow air across the top of the fluid will help speed the rate of evaporation several fold faster.

8. After all of the naphtha has been evaporated you will find small white bumps of extract stuck to the glass which can be scraped off with a flat blade. If you also see some shiny clear film on the glass it is best to wait until they completely solidify into a white deposit before scraping off together with the larger white clumps.

BASIC WARNINGS!

Warning: Wear rubber gloves and safety goggles at all times when working with this solution as well as any other appropriate personal protection you might need. Be careful working with solvents; be aware of static sparks, open flame or possible electrical sources of ignition and work in a well ventilated area! These are just basic warnings, think about what you are doing and how caustic high pH adjusted water and or NaOH can be!

Warning: When mixing NaOH powder into water add only very small amounts of powder to the water at a time, relatively large amounts of NaOH added to a small volume of water can cause extreme heat and out gassing as well as splattering water and chemical in your face or on your body!

Extraction notes

When this extraction process was first tried with inner root bark 1.0 grams of very white alkaloid without discernable fat impurities was extracted from beginning to end in just 2 and a half hours and that includes the time to fan evaporate the naphtha in a broad flat glass pan. Of course, the aqueous mix of root bark needs to be extracted over to get more of the alkaloid out of the mix but you can get plenty of extract for unspecified uses in a short amount of time this way with a minimal amount of elbow grease and time.

Soaking the root bark in basified water

The broken inner root bark was soaked in 2 liters of water with 75 grams of NaOH dissolved into it for 1 hour before trying to mash the root bark in the basified water with a potato masher. The bark almost immediately became a dark black color and the water soon after became very dark brown colored which after 30 minutes of working the root bark with a masher started to appear more black than brown.

The first extraction cycle:

After that 400 ml of naphtha was poured into the aqueous basified mix which was then stirred for 30 minutes with a potato masher so that the solvent would absorb the alkaloid released from the root bark by the high pH water. I recommend using 300-400 ml of solvent per extraction to make separation from the basified portion of the mix easier. Then the naphtha was carefully and slowly

poured off the top of the aqueous mix into another container for full evaporation to net a full gram of white alkaloid from 500 grams of inner Mimosa hostilis root bark without powdering it.

Second extraction, NaOH doubled:

Right after this first extraction a test was done to see if increasing the amount of NaOH would increase the yield so 75 more grams of sodium hydroxide was dissolved into ~750 ml of additional water and added to the mix with 400 more ml of naphtha poured into the bowl which was stirred again for close to 30 minutes and carefully separated from the mix for evaporation. With the amount of NaOH doubled the yield was found to be 50% greater at 1.5 grams of alkaloid and because of this I recommend a minimum of 150 grams of NaOH for 2 liters of water when extracting 250 to 500 grams of broken root bark and from 200-250 grams of this base per 3+ liters of water when extracting from 500 to 1000 grams of broken root bark.

Third extraction:

After the first two extractions the root bark was extracted a third time right way. 400 ml of fresh solvent was added to the mix again and stirred for 30 minutes before pouring the naphtha off for evaporation to yield about ~1.25 grams on the third try that day, all in just a few hours. From there another 400 ml of naphtha (which is way more than needed on a solubility basis) was added to the brown to black appearing aqueous solution, covered to prevent further evaporation and put away to soak for close to 24 hours.

Forth extraction, long soak:

After another day the root bark had become far softer and almost slimy instead of stiff root bark as it had been the day before, the NaOH clearly doing its job at breaking the plant material down. The solvent from this forth long term extraction was evaporated to yield another 1.5 grams of white extract for a total of close to 5 grams of impure alkaloid from 500 grams of inner root bark from the four extractions spread over 30+ hours from when the root bark was first placed in the bowl.

Fifth extraction, another 24 hours and warming:

For this fifth extraction of the aqueous solution naphtha was added into the bowl and allowed to sit another 24 hours before pouring the naphtha off for evaporation. An hour before pouring it off the mix was warmed to 120 degrees F. and stirred for 20 minutes. Upon evaporation it was found that the warming had made quite a difference, even after having extracted the mix four times prior nearly 2 grams of alkaloid was pulled into the solvent this time which was more than any of the previous single extractions, even greater than the first or second which you would naturally assume would be greater. Part of the reason for this might be that the root bark had soaked in the basified solution longer releasing more alkaloid to the water and also part due to both the basified mix and solvent being warm but in any case the draw was highest on the fifth extraction of the solution bringing the total net up to ~6.5 grams with more left in the root bark to get out, all from 500 grams of inner root bark.

Sixth extraction, more heat caused problems:

A sixth and last extraction was performed to the mix by pouring 500 ml of fresh naphtha back into the bowl, stirring for a few minutes and then heating the aqueous solution under the naphtha to 130 degrees F. for an hour, stirring often. The temperature of the naphtha floating on top of the basified solution was measured to be 10-15 degrees cooler than the basified mix below it due to what I assume was being caused by cooling as the solvent evaporated off the top, even though a fairly slow rate of evaporation. After an hour at 130 F. the warm naphtha was poured off for rapid fan evaporation in the large flat glass pan which yielded close to 2 grams of yellowish extract (only becoming yellow after solidifying, clear until then) but this time upon cooling did not firm up very quickly and even after 8 hours was a very soft sticky extract which was obviously mostly the desired alkaloid as indicated by both smell and crystalline formations but would not dry into a firm wax-like substance very quickly due to what I believe might be fatty impurities released from the root bark when heated too far in the base solution.

Extraction advice; soak longer, extract more with less work:

Instead of all of the multiple extractions one after the other you could save yourself some work by just throwing 500 grams of broken pieces of root bark into 2 liters of water with 200 grams of NaOH dissolved into the water and then pour in 750 ml of naphtha and set the whole container aside for three days, stirring just once a day for 20 minutes at a time. After three days the solvent from a single draw of the aqueous mix should contain far more alkaloid, maybe as high as two thirds the total amount pulled out in four separate draws done over 24 hours. Obviously, even after letting the mix sit for three days and a very successful first big pull of the alkaloid from the mix you will need to re-extract the aqueous solution with more naphtha at least three times to get the bulk of the alkaloid out but then you could probably still continue extracting the mix a half dozen times or more and still get more of the alkaloid out each time, although ever diminishing returns. You just have to decide how much you want to get out of the mix before considering it a waste of time or solvent to continue working at it.

Notes on separating the naphtha from the aqueous mix:

When separating the naphtha from the NaOH/water/root you may need to first pour the solvent off the top of the mix into a large measuring cup allowing some of the dark basified water to come over with it so that you can more easily pour the solvent off using the small spout on the measuring cup because when pouring the solvent out of a bowl it is difficult to control what pours out.

To warm or not to warm the basified mix of root bark:

Although the majority of the alkaloid had been extracted at room temperature for this extraction it was found that the amount of alkaloid extracted is greater when the mix is warmed up to 100 degrees F. - Whether it is a good idea to warm highly basified alkaloid containing plant material I do not know. Although the yield was greater in a shorter amount of time on that last draw at over 130 degrees F. the extract was different, although clear before complete evaporation of the naphtha it turned a yellow color and remained as a syrup-like liquid for two days, although

which took days to begin to crystallize yet it appears to be fairly high percentage purity by both smell and appearance when it does crystallize. Perhaps heating the mix allows plant fats to come over which did not do so before?

When soaking the root bark in the warmed solution be sure to periodically check the temperature to make sure the solution does not go over 120 F. or you might get a lot of the gummy impurities in the extract which showed up when I did so. Even though I am recommending 100 degrees F. and suggesting an upper limit of 120 degrees F. even 100 F might be too warm if over a long enough period of time which may have caused some of the gummy substance to come over into the solvent at ~130+ degrees to be extracted. To assure this substance does not extract along with the alkaloid it might be better to just leave the solution at normal room temperatures while soaking the bark in the aqueous mix for 72+ hours and only raise the solution to 120 degrees F. for an hour prior to pouring the solvent off for evaporation.

If you decide to heat your basified mix with naphtha in it for hours to days as the root bark is broken down by the NaOH cover the container with kitchen plastic wrap or something to slow the evaporation of the naphtha. After 48 hours the root bark is broken down pretty good by the lye to where it becomes fairly soft and extracts well but if you are using powdered root bark I do not believe it would be necessary to soak the bark for that long a period of time at all, probably just an hour or more should be enough to chemically break the powder itself down further for a higher extraction yield.

There is a report that the alkaloid will break down in solution over time, more easily if at high pH. I have not been able to verify this is the truth yet.