"JUNGLE SPICE"

MYSTERY ALKALOID(S) OF *MIMOSA* ROOT-BARK

by Entropymancer

The following has been edited, condensed, and annotated by *The Entheogen Review*. Although the resulting article remains much longer than anything we have previously published in a single issue of *ER*, the information within it is representative of several categories of content regularly featured in any given issue. From questions and speculations about chemistry, to hyperspatial maps, to network feedback, extraction processes, analysis reports, and botanical musings, there's something here for almost everyone, including a mystery that we are hopeful some *ER* readers might help to solve in the future.

We first heard about the isolation of what was thought to be a potent novel tryptamine from *Mimosa tenuiflora* root-bark from an informant in Canada in February of 2004. This informant had experience smoking pure DMT, 5-MeO-DMT, and bufotenine, and he felt certain—due to the potency and dramatic quality of effects he experienced—that it was none of these compounds; but he did describe the effects as being "tryptamine-like." We were therefore very excited to discover the article reprinted below, and be made aware of the latest findings in this area. Although we feel that the information in this article is fascinating and begs further investigation, we are unsure that the explanation for the variety of experiences reported is due to some novel chemical(s) in *every* case presented. Most people who have smoked pure DMT a hundred times know that they can have 80–90 "similar" experiences, with the remaining 10–20 of them being all over the board: entirely lacking colors, becoming threatening/terrifying, insanely intense, strangely realistic, or presenting most of the other aspects attributed in this article to "jungle spice." Several of the accounts included below are contradictory in describing the effects of jungle spice. And comparing effects without knowing weighed dose amounts is also problematic.

Many of the texts used in this article were sourced from web postings; as such, the finer details of linguistic expression were often ignored in the originals. We therefore made the choice to substantially edit these texts for clarity, spelling, grammar, punctuation, and length. We feel confident that we have retained the relevant content and flavor of the original accounts, but have placed these texts within °paraquote marks° to make it clear that they are *not* direct quotes. Those unfamiliar with web-based psychonautic acronyms will benefit from knowing that SWIM stands for "someone who is not me." It is also worth pointing out that the term "spice" by itself is frequently used on-line as a synonym for DMT. Due to the large number of web-based texts included, we have employed a superscript numbering system to cite these, and one can refer to the bibliography to locate URLs where most of the verbatim accounts can be found on-line. The original version of this entire article, which includes a couple more extraction techniques, some TLC specs, and several useful color photographs, can be found at: entheogenreview.com/junglespice.html. — Eds.

"Jungle spice" is one of several names applied to an intriguing and potent psychoactive extract that can be isolated from some *Mimosa* spp. root-bark.[2,3,11] Synonyms include jungle DMT, red spice, red DMT, dark spice, and dark DMT. It is the alkaloid fraction obtained from the aqueous basic phase of an extraction by pulling with xylene or toluene after DMT largely ceases to be pulled by an aliphatic hydrocarbon solvent (naphtha, heptane, etc.). This product usually also contains at least some DMT, in addition to one or more alkaloids of apparently novel psychoactivity; some extractors choose to remove the DMT in a hot naphtha wash to obtain a pure "jungle" experience, while others use the jungle spice/DMT mixture as it is.

Several compounds can be isolated by extracting the aqueous basic phase with xylene or toluene.[9,15] Which compounds are isolated may depend on the source and botanical identity of the root-bark, conditions of cultivation/harvest, and various pH, temperature, and airflow considerations throughout the extraction process.[2,3,18,20] Based on their physical properties, we can classify three distinct types of material that can result from the xylene/toluene pull: a red/brown crystalline goo, a tan waxy material, and a yellow oil.

Some have suggested that the mysterious psychoactive component may be yuremamine, a novel phytoindole isolated from *Mimosa tenuiflora* stem-

bark (Vepsäläinen et al. 2005).[13,18] However, this speculation appears unlikely based on yurema-mine's instability at lower pH and its speculated instability when exposed to heat (Vepsäläinen et al. 2005).[18]

On-line threads discussing jungle spice contain posts claiming that the chemical kokusaginine is likely responsible for *jurema's* reported oral activity.[1,8,11,18] These posters generally (mis)cite an issue of *The Entheogen Review* (J.S., OR et al. 1999) to back their claims. Based on physical descriptions as well as reports of its effects, it appears that the compound that some people have wrongly called kokusaginine is identical to the tan waxy material, which is usually described as being very hard.[11,12] Particularly with this fraction, it's been reported that as the chemical ages, the stuporous effects dissipate, and are replaced by a novel and fully psychedelic activity profile (Delafonze19 2008; Toresten 2008).[14,15,19]

Red/Brown Crystalline Goo

° After doing two pulls with naphtha I did two pulls with toluene, evaporated the toluene, and washed the solids with naphtha, which made them dark red. °

— Entheogenist[6]

° The jungle spice I got is just like a piece of a red crayon. After evaporating off the solvent, it looked like crystals on the dish. But when scraped up, it all stuck together to make this waxy homogenous stuff. It has a strong smell of indole when burned, but otherwise it has an odor similar to DMT, but with a fruity kind of a smell. °

— QuantumBrujo[6]

° SWIM succeeded in pulling the red spice. It's a dark, deep crimson color, almost the color of dried blood. °

— Spicemeister[11]

The red/brown crystalline goo that one can find pictures of on-line are what I think of as jungle spice, but washing this goo can yield a diversity of products. As the above quotes indicate, in some cases washing the dark gunk with naphtha leaves behind a red solid that is insoluble in the naphtha. This red material has been isolated both by acid/base extraction and by straight-to-base extraction (Noman 2008).[6,15,16,18,20]

The crude extract is a mixture of compounds. In most cases, pulling the alkaline aqueous phase with xylene extracts a bright yellow color into the solvent, and the red pigment isn't seen until the solvent is evaporated.[18,22] When the DMT and other impurities are removed from the crude extract via a warm wash in an aliphatic hydrocarbon (naphtha, heptane, etc.), several extractors report that the recovered DMT crystals remain stained yellow.[11,14] This yellow fraction of jungle spice that is soluble in warm naphtha could be several different things (see Yellow Oils).

However, some people obtain an explicitly brown goo from the xylene pull, with no indication of red coloration whatsoever.[11,16,18] Although this may appear similar to the crude red/brown goo on initial inspection, exclusively brown extracts appear to yield a different product, distinct from the red material (see Tan Waxes). Lighter tan waxy specimens have been obtained after a brown goo was washed with hot naphtha.[18]

While the red material may be a mixture of multiple alkaloids, it also seems plausible that the red material might have essentially the same chemical composition as the tan waxes, with the addition of a small amount of a red pigment that's responsible for the differences in color and consistency between the red and tan materials.

Tan Waxes

° A xylene pull of a basified acidic extract of this material yields a crystalline slightly orange waxy substance that smells of tryptamines and glows orange under a blacklight. °

— Archaea[11]

° Ended up with tan waxy non-oily stuff that is stronger than hell (10–20 mg) and terrifying. It's not just residual DMT, its too strong for that. °

— Noman[18]

The tan waxes are obtained in the same way as the red material above: an aqueous hydroxide solution containing *Mimosa* root-bark alkaloids is extracted with several volumes of naphtha until no more DMT is pulled. The spent solution is then extracted with a few volumes of xylene or toluene to obtain the crude jungle spice. Washing this crude material with hot naphtha yields a waxy solid, that ranges widely in color from extraction to extraction (Noman 2008), appearing light yellow/orange to tan to brown.[9,11,16,18] This material has also been isolated from both acid/base and straight-to-base procedures (Noman 2008).[11,18] The reported pharmacological activity of this material suggests that there may be more than one compound here. Tan waxes are the fraction of jungle spice that are most frequently reported to change in psychoactive effects over time, indicating that some chemical reaction (presumably oxidation) is occurring.[5,9,19]

Yellow Oils

> ° The material that was evaporated out of the filtered xylene defat of the powdered root-bark was a yellow creamy color prior to purification, and a translucent orange, almost oily residue, which would not dry to a hard substance. °
>
> — Lycaeum Member[20]

> ° It's yellowish. Even a yellow crystal. Smells the same as DMT, with a musty overtone. °
>
> — Heyoka[10]

> ° After two recrystallizations on the DMT that came out with the jungle spice, SWIM tells me it is irretrievably stained yellow and resembles egg yolk. °
>
> — Spicemeister[11]

This is by far the most ambiguous fraction that comes out of the xylene/toluene pull. Some yellow oils isolated from *Mimosa* spp. have been speculated to be plant fats, and another fraction is suspected of being an oxidation product of DMT.[1,4,10,18] When DMT is extracted with xylene/toluene or diethyl ether (without using naphtha first), it also tends to come out with a bright yellow-orange discoloration.[5,9,11,18,22]

The most substantial evidence that there is more than one compound in the yellow oil is the ambiguous solubility of the material. Yellow oil is separated from jungle spice based on its solubility in naphtha, while at the same time a yellow oil can be removed from DMT (extracted by standard straight-to-base methods), due to its insolubility in hot naphtha. Clearly these must be different yellow oils.

To further complicate the issue, it's difficult to isolate the yellow oil on its own. Many people doing otherwise normal extractions report obtaining a yellow product when the naphtha pulls are performed using heat.[1,10,18] The resultant yellow crystals are sometimes reported to be qualitatively "better" in effect than pure DMT (delafonze19 2008).[10,22] Also, when washing the crude jungle spice extract with warm naphtha, some extractors report that any DMT they recover from this process is strongly yellow-colored, and that this pigment seems impossible to remove by typical purification methods. Unfortunately, I haven't been able to find any experience reports using such yellow-stained DMT that specifically resulted from this process.[11,18]

Investigating the possibility of the yellow oil being DMT-*N*-oxide, I found a paper reporting the isolation of this compound from a methanol extract of *Acacia confusa* (Buchanan et al. 2007). However, the paper didn't provide any description of the physically observable characteristics of the compound (such as color), it only gave the measured NMR data. Someone with access to proton NMR spectroscopy who obtains a sample of yellow "oxidized" DMT could use this NMR information to conclusively establish or refute the identity of this material as DMT-*N*-oxide. TLC analysis mentioned on the web of whole and purified extracts of *Mimosa* root-bark described DMT-*N*-oxide as a yellow oil, but I have been unable to corroborate this description in the published literature.[4]

Looking at Radio879's LC/MS of a crude xylene pull of jungle spice reveals a peak at 205.1 *m/z*, which corresponds to the expected molecular ion of DMT-*N*-oxide,[15] so it seems like a pretty good bet that

this chemical is generated as a side-product of the extraction process, although it may exist in the root-bark as a trace component, as there is a barely perceptible peak at 205.1 *m/z* in the paper reporting the characterization of yuremamine from stem-bark (Vepsäläinen et al. 2005). It's also possible that this trace peak was an artifact of the isolation process as well. *[DMT-N-oxide certainly could be psychoactive when smoked (Shulgin 2008), and it should be simple enough for experimentalists to make some and try it. DMT-N-oxide forms by the action of hydrogen peroxide on DMT: 50 mg of DMT dissolved in 2 ml of ethanol is treated with 2 ml of hydrogen peroxide; after two hours at room temperature, crystallization is induced by adding ether and chilling; the granular DMT-N-oxide is removed and recrystallized from ethanol-ether. — Eds.]*

General Comments on Colored Spice

° The old-school heads at the festivals keep talking about red or orange DMT from back in the day, and how strong it was. I'm wondering if that old-school DMT was actually just a mixture of the two spice alkaloids in one product, because as far as I can tell, pure DMT is white or clear crystals. °

— Anonymous[18]

° I have had the orange DMT that Terence McKenna and old heads speak of. It was *different* than the snow white DMT people extract these days. °

— Anonymous[18]

° No. They've never had the current forms of colored DMT back then. These new forms are the most ridiculously potent DMT SWIM has ever smoked. Since 1999, there have been the red (also called purple by some), yellow, orange, and white spices available at music festivals. These have been kept underground until recently. At the last SCI shows in Red Rocks, CO, all colors were available, being offered quite openly. You could smell that sweet plastic smell every few thousand feet while walking the lot. °

— Anonymous[18]

There has been a great deal of discussion about "yellow DMT" and "orange DMT," some of which has been reported to produce effects different than white DMT.[3,5,10,11,18,21,22] These colored materials are reported by some to be more potent than regular DMT, and by others to be less potent. There are several factors that can lead to yellow or orange DMT. The discussion will be organized based on the reported origins of the colored crystals.

Old Spice

° The yellow oils oxidize to a ruddy-orange color when stored at room temp for a month in a metal container. This is not good to let go any further. It's degrading as the color goes yellow to orange. I have thought that this "aged" yellow DMT, which becomes orange, looks how McKenna's DMT must have: a reddish and smelly mix of oils and clear crystals. But beware! It keeps oxidizing and definitely goes "off." It becomes blackish-rusty-red and smells different. When this happens, it does not launch you—you get dragged behind the hyperspace shuttle. Bleah! °

— El Ka Bong[9]

The simplest form of colored DMT may come from samples that were originally white. As these samples age, they turn yellow, then apricot, and eventually become orange and waxy over time.[10,12] There is substantial disagreement over the amount of time it takes for this process to occur.[10] Some people report a change in color after several weeks to a month, while others have samples over a year old that remain without discoloration.[10,12] One potential variable is the type (and amount) of impurities present in a sample. This is corroborated by differences in the DMT's shelf-life positively correlating with differences in the clean-up process used when extracting it; multiple samples that turned color rapidly with age had not been washed with ammonia or bicarbonate, while the samples that remained white for over a year had.[10] This may indicate that either residual hydroxide from the extraction, or perhaps some trace phytochemical that the alkaline polar wash removes, is responsible for the change in DMT as it ages. Anecdotal reports indicate that higher temperatures speed discoloration.[5,12] It is unknown whether other environmental factors, such as exposure to oxygen or moisture, also play a role in the rate of degradation.

Since white DMT can turn orange over a period of time, it is tempting to consider the discoloration an oxidation product of little consequence. Unfortunately, it may not be quite that simple, since we've already fingered a *yellow* oil as the most likely candidate for the simplest DMT oxidation product (DMT-*N*-oxide). The orange color must come from something else.

When stored at room temperature for a long period of time, a small amount of the DMT may begin breaking down into DMT-*N*-oxide. This DMT-*N*-oxide is now *also* being exposed to environmental conditions for a long period of time, and *it* may begin breaking down into another degradation product, which is either deep orange or red. This should mean that starting with a crystal containing a trace amount of DMT-*N*-oxide will more rapidly lead to the material turning orange. This explanation is consistent with observations that have been made on yellow oil, but it remains a speculation. It is also possible that the orange/red degradation product forms independent of the yellow oil; there isn't enough information to draw any hard conclusions. (Anyone want to run TLC, GC/MS, or LC/MS on old orange DMT that started out white?)

To the people smoking it, what any discoloration *does* is a more important issue than what it *is*. Combing through anecdotal reports on the issue, there largely seems to be a consensus that as the DMT turns orange over time, it becomes qualitatively "different" in terms of the experience, but it is not any less potent at first. Then gradually, the sample loses potency and it eventually becomes qualitatively unpleasant in effect.[12,18] Smoking very old DMT has been compared to smoking the residue that collects inside of the DMT free-base pipe.[5] *[Dark DMT (including pipe residues) can have a more threatening feel, but this could be reflective of an increase in pain from smoking breakdown products like skatole, which is demonstrably harmful to lung tissues; the oppressive feelings that can arise may simply be due to ingesting something that the body recognizes as a poison while coming on to a sensitive altered mind state. — Eds.]*

Synthetic vs. Extracted

When talking about DMT from the 1960s, 1970s, and 1980s, it's important to recall that we're likely not talking about the beautiful snowflakes of DMT that any Joe Blow can extract these days from *Mimosa tenuiflora/M. hostilis* root-bark. It was only in 1996, within a review of a Botanical Preservation Corps seminar in Palenque (which appeared in the summer issue of *The Entheogen Review*), that dosing specifics for *M. hostilis* root-bark as an ayahuasca analogue were first reported in print (Forbidden Donut 1996), although Jonathan Ott had hinted that the roots of this plant might be a good choice for such purposes a couple of years earlier in *Ayahuasca Analogues: Pangæan Entheogens.* And most extraction processes posted to the Internet in the mid-1990s were geared toward obtaining a smokable DMT-containing goop. There isn't a lot of clear information on whether the DMT circulating in previous decades was of synthetic or extracted origin. *[While this is true, one can speculate from the preponderance of published synthesis procedures in the underground literature (Brown & Associates 1968; Superweed 1969; Darth 1977; Smith 1981) and the dearth of published extraction methods in the underground literature, that most DMT available between the 1960s and the 1980s was synthetic. Our discussions with underground chemists support the contention that the vast majority of commercial DMT prior to the 1990s was synthetic, as does the fact that the vending of DMT-containing botanicals to the psychonautic market only began in the late 1980s and early 1990s. — Eds.]* These are important considerations, as the initial purity and the chemical properties of the contaminants may be key factors in determining how the material ages. The discussion within this article assumes that most of the currently available DMT has been obtained via extraction processes published in the last decade.

Evaporated Material

Another common form of colored material results from people evaporating off their nonpolar solvent instead of freeze-precipitating.[1,22] The yellow pigment contained in DMT that has been extracted with an aliphatic hydrocarbon and collected by evaporation is most likely inconsequential trace impurities, such as plant fats. It is reportedly

harsher to smoke, but roughly the same potency as white DMT.[1,22] This yellow fraction can be removed by recrystallization.[18] There is no indication that this sort of discolored DMT contains any unidentified psychoactive chemicals.

However, it appears that there is another form of yellow material that can be obtained by evaporating off the solvent, depending on the evaporation conditions. People report a much more oily yellow product when the solvent is evaporated with high airflow from a fan, particularly at warmer temperatures.[1,18] Others have obtained yellow crystals by melting off-white DMT in an attempt to do a "solvent-less recrystallization" (see Preparation of Yellow Spice). Yellow crystals obtained in this fashion are reported to be qualitatively different than plain DMT, and slightly more potent (Delafonze19 2008).[1,22] Based on this information, it sounds like these methods are producing DMT that contains the type of yellow oil that may be DMT-*N*-oxide.

Alternate Solvents

Heptane and naphtha have not always been the solvents of choice in DMT extraction. Some older extraction processes recommend ether or dichloromethane (DCM), or aromatics like xylene and toluene[18,22] (and decades ago, extractors might have used benzene as their nonpolar solvent). All of these are effective for pulling DMT, but they are less specific and also pull other fractions. All have been reported to yield yellow or orange DMT.[3,11,18,22]

Xylene and Toluene

Both of these solvents are known to pull a mixture of DMT and jungle spice when used on a nonpolar soup that's been largely exhausted of DMT, which was extracted with an aliphatic hydrocarbon.[6,15,18] It's therefore reasonable that they could be used as the primary extraction solvent to pull a similar mixture that contains a great deal more DMT.[15,22] One experimenter did just that:

> ° SWIM decided to extract 100 grams of *Mimosa hostilis* root-bark (MHRB) with xylene and evaporate, just to see the difference between this process and a naphtha/freezer precipitation. After collecting three xylene pulls he had about 130 ml of piss yellow xylene. He evaporated it off to leave a circular pattern of yellow spiky crystals.
>
> ° Oh... my... god! SWIM just finally sampled this batch and for the first time in almost a year, it's the *real* deal. He has been searching and searching for this. SWIM tried just about *every* known vendor of MHRB and it was all the same: *not* what DMT should be like. So he e-mailed a little-known vendor asking for a sample, and received 100 grams. He finally got a chance to extract, and holy shit is he satisfied. Entities, geometry, self-transforming machine-flowers. Blown away.
>
> ° He will always extract the same way from now on: pull with xylene and evaporate all the way down, wash with ammonia, and blast-off. °[22]

Although we can't rule out the possibility that there may have been something idiosyncratic to the specific root-bark used in the above description, this report supports trying xylene as an extraction solvent if you're looking for an orange material that may have something that white DMT lacks. Another extractor also obtained an orange material using xylene as the extraction solvent, and had a sample analyzed by LC/MS, which allowed for some discussion of the identity and abundance of other compounds extracted by this solvent[15] (see Mass Spectrometry Analysis).

Ether or Ether/Heptane

Extracting with ether, or a binary solvent of ether/heptane (8:1), invariably leads to product with a yellow discoloration.[11,18] Since the ether is evaporated off, it's not surprising that the product is yellow, as one might expect plant fats or other impurities to extract into the ether. On the other hand, ether/heptane is known to extract a brown waxy compound along with the DMT, so it's possible that the yellow color in ether extracts is a trace amount of the jungle spice fraction. Based on reports of ether extracts smelling "strongly floral," it's also possible that ether is extracting some skatole (see GC/MS Analysis). While ether, dichloromethane, and aromatic solvents have all been reported to pull jungle spice, ether is the only one of these solvents *not* reported to produce orange crystals when used alone as an extraction solvent. This is particularly interesting when one considers that ether is also

the solvent associated with the hard tan wax extract, and has never been reported to extract a red product when used as a solvent to obtain jungle spice.[11,18]

Dichloromethane (DCM)

Recommended by some older extraction techs, recent literature suggests that using DCM as a defatting solvent may allow for the formation of *N*-chloromethyltryptamine, a chemical of unexplored pharmacology (Brandt et al. 2008; Buchanan et al. 2007). It is possible that this compound might form when using DCM as an extraction solvent. Orange crystals that result from the use of DCM could be colored for the same reason that the orange crystals result when DMT is extracted by xylene. There's also the possibility that the color results from a pigment pulled specifically by the DCM.

DMT has been found to be reactive toward DCM, either during work-up or long-term storage therein, which led to the formation of the quaternary ammonium salt *N*-chloromethyl-DMT chloride (Brandt 2008). *N*-chloromethyl-DMT chloride is unlikely to be psychoactive based on its presumed low bioavailability; potential toxicity concerns are unknown. One extractor decided to perform some experiments to establish whether the orange color was extracted from the plant, or whether it might be the rearranged *N*-chloromethyl derivative. After obtaining an orange material from a *Mimosa* root-bark extraction with DCM, he tried extracting *Psychotria viridis* leaves by the exact same process, and found the result in the latter case to be pure white DMT.[1] This result strongly indicates if *N*-chloromethyltryptamine and/or *N*-chloromethyl-DMT chloride do form via the use of DCM as an extraction solvent, that they are not responsible for the resultant color when *Mimosa* spp. root-bark is extracted, and that the color is due to the solvent's lower selectivity (as compared to typical alkane solvents), resulting in the extraction of some colored compound from the root-bark.

Odds and Ends

As the mention of *Psychotria viridis* above alludes to, other plants are commonly used as DMT sources. DMT-containing *Acacia* spp. can yield an orange crystalline product on extraction, for example. While some of this color could be due to plant fats, *Acacias* have a diverse chemistry, so it is possible that some of this color could come from other alkaloids (Buchanan et al. 2007).[18] Some of the color might even come from 5-MeO-DMT, which is substantially more potent than DMT by weight. Further, a colleague recently encountered some bright red DMT that had been extracted from a species of *Phalaris* grass (Anonymous 2008).

I have seen two unrelated references to a "purple spice." One was accompanied by a blurry photograph showing unmistakably purple material. I cannot conceive of this coloration having come from any of the botanicals discussed above. Until some experiences are reported with such material, it's probably best to recrystallize any such spice one happens to run across.

Infrequent references to "green spice" are a mystery I think that I can solidly put to rest. It is only known to have been isolated by evaporating the solvent to collect the material, and it has only been reported in cases where the extractor used unsavory brands of naphtha (like Sunnyside). In one of these circumstances, the extractor evaporated a from-the-can sample of the solvent and discovered that it left a blue residue. Thus, it appears that green spice comes from yellow material plus a blue nonvolatile solvent additive. Long story short: avoid "green spice" like the plague.

Experiences

Below is a collection of experiences that people have had consuming jungle spice. The reports do not allow us to paint a conclusive picture about the activity of the materials, but they have value in providing evidence that there appears to be an as-yet-unidentified psychoactive compound (or compounds) at work here. The sheer volume of reports detailing different or more potent effects at lower dosages than are used with ordinary DMT is strong evidence that there is an unsolved piece in this puzzle.

Smoked Red Crystalline Goo

°EASY DOES IT; 10–15 mg of this stuff is insanely potent and just a bit more scary/intense than DMT.°[18]

°I TOOK THREE full tokes from the red oil. The effects were a lot like regular DMT, but there was something different. It seemed to be missing the loving presence. The "other place" hallucination was there, but the colors were not—or at least they were very dark and dull. My friend and I both felt like we would much rather stick to the regular, definable, loving, white DMT (Warren-Saged 2008).°

°THERE IS A DISTINCT difference between DMT and the red spice for me. When smoking DMT, I want to smoke as much as possible. But after a few puffs of the red spice, I was completely revolted. The anxiety and intensity of DMT was not present, but it was very odd and frightening. It's flavor was a spicy barbecue sauce, which was tolerable. The effects of it were much more subtle with an "easing in" instead of a blast-off. The room became twisted, grotesque version of itself, something out of *The Nightmare Before Christmas*. It felt like a graveyard that I was alone in (in a bad sense), but then some beings started to appear. They were black, fuzzy balls of energy, about one-and-a-half feet tall and one foot wide. They were very friendly, and investigated me like children might do. However, the experience made me draw up into myself, and I was quite dissatisfied with the feelings. Subsequent DMT use, about a half-hour later, brought me to a *bad* part of the "city," with clown beings of intense negative emotions and ideas who did not like me at all. (They were in no way jester- or joker-ish.) They also beat up my Guardian, when he tried to protect me from them.°[16]

°THIS RED JUNGLE SPICE is the *best thing* I have ever seen. Terence McKenna *must* have been smoking the jungle spice thinking it was DMT. I've smoked a lot of DMT and read a lot of Terence McKenna, and I had *never* seen anything like what he describes. But from two tokes of this red jungle spice, I had his trip *word for word*. This stuff is *so* much better, stronger, deeper, more meaningful, and more pleasant to use than DMT. I smoked it with my eyes open while watching Shpongle. The stage began to morph, and suddenly a self-transforming machine elf ripped the stage in half and jumped out to dance on top of the ravers. He was made out of what appeared to be glossy molded plastic (like a kid's toy), and he was extremely colorful, changing shapes and dancing. This was with my eyes open. I had my rational mind intact; I knew I was at a Shpongle show smoking jungle spice. Yet I could not believe my eyes. I even squinted at the stage in disbelief, trying to make things return to normal. If you smoke it with your eyes open, it completely transforms reality before your eyes. This is absolutely the most amazing chemical I have ever encountered. I passed out about three grams of the stuff in individual doses at the show, and everyone agreed that it blows DMT out of the water.

°The second time I smoked it, I closed my eyes. I was shot like a laser beam into God-consciousness. I *was* God. I created the universe and spawned life on earth. I saw the beginning, the end, and everything in between. I beheld every thought that had ever existed in one instant. Then I returned to reality and was back at the rave. But I still thought I was God. I was walking around telling people I was the reincarnation of Jesus, Buddha, Terence McKenna, and Tim Leary rolled into one. I truly believed this at the time. I felt omnipotent. I knew everything. But this began to fade and I started to feel stupid for walking around claiming I was Jesus and believing it. So then I started experiencing karma. I left the concert area and hid in the dark to meditate. I thought the people at the rave were going to crucify me. I thought they had already killed my son and were coming for me. I accepted this though, and embraced my imminent death. I knew I was going to die that day, and it was okay. It took about thirty minutes for the jungle spice to wear off, and by that time I was a new man. My ego had been lifted up to the point of thinking I was a walking God,

and then it was crucified. This stuff makes DMT look downright boring.°[16] *[From what we know of the DMT market, it is very unlikely that the DMT accounts Terence McKenna wrote about were describing extracted DMT. — Eds.]*

°THE REDDISH OIL was not as visually overwhelming as the white crystals but was far more intrusive on my psyche. I usually did not go back for more at a sitting. I'd get almost a nervous hangover from it, whereas DMT leaves a pleasant afterglow.°[15]

° IT IS ACTIVE in tiny smoked doses like 5-MeO-DMT is, and there are no visions: just that crazy "tryptamine look" to everything. SWIM was not prepared for what was coming and the trip was indeed dark and scary. SWIM will try again once the negative vibes have abated.°[3]

°I'M TRAVELING through their world now. I cannot interact with them and they are not aware of me, but I can affect their environment. They are solitary, lonely beings, living out their existence. They are oddballs. One being is a floating bust of an angry man, another is a pastel red colored "cat" with a bejeweled back. This land was not overtly unfriendly, but definitely an uncomfortable place to be in. The experience was short-lived, due to my purposeful grounding.°[16]

°ON MY FIRST attempts to extract DMT (which were barely successful) I used chloroform, and I would get this red DMT extract. I smoked the lot. I was dosing low, because I didn't know what to expect. Almost all the experiences were fantastic, like an enhanced mushroom trip condensed into five minutes, although I never had a breakthrough at these low doses. Once I smoked a salt-precipitated Syrian rue extract and then smoked a very low dose of this red extract, and I was in pure ecstasy. I had never felt like that before (not even once). It was like a spiritual orgasm. I think what you expect from the trip influences it a lot. I say this because when I tried it, I knew nothing about red or jungle DMT. I had never read it could be a dark or scary trip, and I am sure that is why it wasn't (although it was a bit shocking). Anyway, free your minds, don't be afraid, and you should be all right.°[18]

°START WITH A SMALL dose. Try between 5 and 10 mg. I think that 15 mg is probably as much as I would do, if I was to do it again. I wouldn't recommend doing over 25 mg of this stuff, whatever it is. It definitely feels like a tryptamine.°[6]

°SWIM ONCE EXTRACTED a batch of a reddish-brown DMT from MHRB. It was qualitatively different from the white-yellow extract from the subsequent batch. At first it was her favorite color to smoke (over white or yellow). But as it aged and became darker red, the effects became "evil," opening only to black, twisted hyperspaces. It was as though the DMT in the red spice had deteriorated and oxidized, leaving mostly mystery alkaloids that were having a greater effect.°[9]

°THE EFFECTS of the red spice were on the body only, no visuals. However SWIM found it very nice to put a chunk of the red behind the DMT in the pipe. Two large hits of DMT, with the third being the red. It seems to make the DMT extremely more potent, and much longer lasting.°[11]

Smoked Tan Waxes

° FOR THE AMOUNT smoked, not that much at all, the effects were outstanding. I'm not sure if it was a "breakthrough" or not (or even if that term has any relevance for dark DMT goo), but I was traveling—with no control—through a strange, slightly blurry landscape with subdued colors. I can't remember that much, but I do recall that at the end (although I didn't have the concept of "I"), I came to a brown box or door, but couldn't go any further. When I woke up/opened my eyes, I was still getting some visual effects: very bright colors, the greenest plants ever, and my walls were incredibly yellow. The patterns on my ceiling were mov-

ing about, and the angles and distances in my room appeared distorted too. This continued over about 5–10 minutes, lessening in effect.°[8]

°THE MATERIAL IS TAN and has the consistency of wax without being oily. A friend was over and wanted to try it. Not wanting to yuck up my DMT pipe (and thinking that the stuff was shit anyway), I threw a few crumbs on top of a bowl of bud: 20 mg max. I figured that it would mostly just taste bad. My friend took a hit, and then passed it to me. The bud was still burning so I just flamed the top, figuring that he had gotten most of it...

° *PUT IT DOWN, PUT IT DOWN, PUT IT DOWN!!!!!!*

° Fuck, I couldn't get rid of the pipe fast enough. I leaned back in my chair. Why did I do that? Fuck-fuck-fuck-fuck-fuck. NO-NO-NO, I DO NOT WANT THIS; I DO NOT WANT TO KNOW THIS! Please just let me out. I'll never come back. Just make this stop.

° I don't know what I was reacting to. I was aware of no sensory input, hallucinogenic or otherwise, just that horrible feeling of NO-NO-NO. It went on forever and an instant. Then I started to become aware again of my body and myself and I opened my eyes trying to pull out of that horrid fuckhole. Nope. Horrid fuckhole out *there* too. I had that crazy DMT vision where everything is fuzzy and lit from within and exists standing apart in its own dimension. But rather than the jewel-like beauty of each atom, I was aware of the ugliness and nastiness of every line, shape, color, and texture. Everything was made of puss and overlapping and falling and oozing and suffocating and vomiting on me. I closed my eyes again and I *became* the ugliness. I opened them and settled for just being suffocated by it.

Everything was made of puss and overlapping and falling and oozing and suffocating and vomiting on me.

° Around this time my hearing came back on line and I realized that the Tool album that we were listening to was no *ordinary* Tool album, but a direct communication to me to reaffirm just how rotten and horrible every aspect of existence is. This came not as a paranoid flash of conspiracy like on marijuana or acid, but just as a fundamental understanding, like info gained from mushrooms. How can this be? How? How did they know that I'd be listening to this exact song right now? Despair washed over me as I realized just how horrible and squalid everything that I'd ever known or loved was.

° The psychoactive was wearing off. I white-knuckled it back, said good night to my friend, and went to bed. The next day, the feeling was still there. Nothing overt—I was just wearing a wet blanket of sorrow and despair. Beautiful things made me sad because I now knew what a lie they were. Nothing was nice. Everything had sharp teeth and wanted to bite.

° The feeling faded over the day, and now—two days later—I have to think about it to bring it back. But it's still there. This could merely be a DMT trip gone bad. The substance was definitely used with inadequate preparation, but I've used DMT under less than ideal circumstances before and never had it go *that* sideways. Such a small dose too—I'm sure that the total quantity in the bowl was less than 25 mg. My friend hit it first, I only had one toke, and in the morning I discovered that there was still some in the bowl. Twenty-five mg of pure DMT doesn't get me as high as *that* shit did. It seems like it lasted longer than a DMT hit too, but I couldn't say for sure, as I was too out of my mind to take note.°[19]

°SWIM ONCE EXTRACTED some stuff using limonene and everclear that had no real psychedelic effect worth mentioning, but it did produce a long-lasting body high that felt really good, kinda like rolling or maybe a 10,000-X blue lotus extract or something. He smoked it with two chicks. He and one of the girls ended up falling asleep, while the other girl stayed awake for about five hours and contin-

ued to feel it the whole time. It felt good, but to use her words, it was like a "sinking spell."°9

Smoked Colored DMT

There don't appear to be any experience reports by folks who have extracted, purified, and smoked a yellow oil. However, there are some reports available with yellow or orange colored DMT.

°SWIM MELTED his big hunk of red/orange waxy xylene extract in hot naphtha and then freezer-precipitated what he could out of it: yellow crystals. He's smoked the yellow crystals three times now. It worked so well that after three or four pulls on the pipe, he found himself in a different house, with different furniture, trim, etc., but the plant spirits in the yard were the same! Holy mother of God! He's pretty sure that something else came through in the naphtha, hence the yellow color. In any case, it's almost prohibitively strong.°22

°TWENTY MG of the mysterious crystal was smoked, and a very strong, powerful body load came on quickly. There were basically no visuals: no light, darkness behind closed eyes. Yet the exterior world was altered and distorted, with black outlines, more definition, and distance and size were screwed.°24

°IN TERMS OF the subjective effects, breakthroughs could routinely be achieved with 30–35 mg. I never noticed any of the dirty visuals or other unpleasant effects that seem to be plaguing most of the commercially available *Mimosa hostilis* root-bark extracts these days.°21

Oral Activity of Jungle Spice

°I HAVE EATEN capsules packed full of this extract and its definitely active without an MAOI—seems those other alkaloids in there will work as MAOI enough to activate the DMT for an hour or so: it just feels like DMT and nothing else. But if I ate some a MAOI beforehand, those other alkaloids *do* work orally and they really ruin the DMT experience.°15

°IT DOES MAKE DMT orally active. I can put 200–300 mg in a capsule and eat it, and it will feel like a weakish dose of DMT, not last that long, and I don't feel the other alkaloids. But if I *do* take harmaline, it tends to activate these nasties and make the experience, well, suck completely.°13

°SWIM INFORMS ME that he has just taken an oral dose of 150 mg to see if this is orally active without the use of an MAOI. This was taken on an empty stomach, no additives, and he is on no medications prescription or otherwise. SWIM knows this is probably a very large dose, if active and as potent as people say, but SWIM couldn't measure it very well. When he tried to scrape it up, it turned into dark orange goo; he could not put that shit on a scale, so he weighed an empty capsule and then dabbed some in and weighed it again, at first it was 300+ mg. SWIM took out as much as he could, but only got it down to about 150 mg. At this point he said, "Fuck it," and popped the capsule. It has been nearly three hours since SWIM consumed the capsulated dose. SWIM reports minimal results: slight body buzz, mental cloudiness, and *very* slight visual disturbances.°11

Changes in Activity with Age and Heat

Since most samples of jungle spice appear to contain some residual DMT, it will be useful to first address changes in activity over time observed in "pure" (white) DMT. Discussion below will be confined to the drastic change in activity that seems to occur when mild to moderate environmental heat is involved. After that, we'll consider the reports of changing effects over time as they pertain to the jungle spice. No reports could be found on the red crystalline form of jungle spice changing in effect over time, but the phenomenon was reported several times with the tan waxy fraction.[3,11,18]

Experiences with Old Spice

°SWIM LEFT A VIAL of DMT in an automobile for about a half-hour while inside the bank. It

was a pretty hot day out. When SWIM returned home, he decided to take a hit. To his dismay, he found that the vial previously full of white DMT crystals was now half-full of brownish beige shit that had melted together and onto the inside of the vial. He used a poker to scrape all the shit out, and then chopped it back up with a razor blade. It was much dryer than before. The same weight looked like half as much as it did before.

° SWIM decided to smoke it anyway, and found the effects to be more akin to *Salvia divinorum* than DMT. The "coming up" and "after effects" were all but nonexistent. The experience rendered the room unrecognizable and SWIM was definitely somewhere else instantly—then returned to normal just as quickly with no residual visuals or euphoria. He later tried a smaller dose, and before he could get well into the second hit, objects in the room began to bounce back and forth as if being tossed around by an unseen force. He heard chuckling and had to stop his hit and just stare at what was happening. It was *not* DMT-like. SWIM knows DMT, and this came on much too quickly and was very bizarre, but in a different way than DMT. Literally, there was no "coming up." He hit the pipe once, held the hit for maybe twenty seconds, went to take another hit, and maybe two seconds into it everything was ping-ponging. (Well, not everything, but the alarm clock, the lizard cage, etc. Other things remained the way they originally were.) This happened much too fast for DMT, and the absence of any after effects leads him to believe that the crystals left in the car somehow transformed into something else that, while very interesting, is *not* DMT. SWIM didn't care too much for it by itself, but mixed with a new batch of DMT, about 70% new, 30% changed, it is quite interesting; this brings back the colors/richness and euphoria, but keeps some of the weirdness.°[12]

° THE SUBJECTIVE effects of DMT are most certainly affected if the material is exposed to light and heat. I won't waste time speculating on why, but it absolutely *does* happen. To preserve the quality of your spice, keep it in the freezer in an amber vial when it is not in use. SWIM even has a little zipper lunch sack with two ice packs for when he brings it to a remote location, to help prevent its degradation.°[12]

° SWIM ONCE DECIDED to hide about 0.75 of a gram of spice contained in an airtight glass vial under the hood of his car. He thought, "The engine is cold and its less than two miles, the spice will survive." The spice melted and turned to rock. Its effects were different. Very abrupt onset and downfall. Straight to almost unconsciousness without the lucidity. SWIM has melted and heated, and played around with spice many times since and yes, he thinks something is going on. Certainly degradation, but not limited to just that.°[12]

° TAKE SOME WHITE/CLEAR crystals and gently melt them down to form a nice little rock. It will probably turn off-white if not yellow. Start with yellow, and you'll likely end up with something orange-ish that, while probably harsh, will blow your top off.°[24]

° SWIM HAD A FEW days break from DMT and when he came back to it, it had become multi-colored, non-formatted crystals. So he thought to himself that it would be a good time to recrystallize it to make it nice and uniform. SWIM did a re-extraction, and wound up with significantly less material than he did when he began.

° The DMT put into the re-extraction was good: very nice, fully visual, etc. Now SWIM isn't a chemist, so he has no idea what happened; that's why he is putting this out there. Perhaps someone can shed some light. Ammonia was added to some solvent of diethyl ether and heptane, shaken vigorously, and this made a nasty looking layer between the solvent and ammonia. The solvent was removed and was supposed to be cleaner than before. The smell of the solvent was not changed by the ammonia. Over low heat, SWIM dissolved his extract into the solvent, placed it in the freezer, and precipitated a beautiful yield of uniform, slightly yellow crystals, which he laid out to dry.

° SWIM now thinks the crystals were not fully dry. A situation arose, where everything had to be put up quickly. They were placed in a lightproof, snap-top tube and placed in the freezer. There they sat for five or six days; when the tube was opened, the extract reeked of ether, so the tube was left open for about twenty hours and then returned to the freezer for another day or so.

°SWIM then removed the crystals (which were entirely dry, with no ether smell) and prepared to smoke some. SWIM works alone on top of a mountain guarding heavy machinery all night. SWIM breaks out his pipe, loads a small amount of the stuff and proceeds to toke. SWIM almost pukes! The stuff nearly ripped the tissue from SWIM's chest, it was so harsh. SWIM thinks, "What the hell?" and tries again, with the same result. It is much more plastic tasting, like smoking some horrible chemical from the abyss of Hades. SWIM manages to hold the second toke, at a cost of tasting blood after he blows it out. SWIM feels nothing. Damn, what happened to his spice?! There are no visuals, there's no body load, nothing.

° SWIM waits a couple of minutes, then rises to grab his cigarettes and curse under his breath while turning his headlights on, and what does he see? Why two yellow demons copulating on top of a bulldozer! SWIM is dumbfounded. He has never had a hallucination with such texture. He steps out of the truck, completely sober—except for the vision of these two copulating demonoid creatures—and approaches them. When he gets within about ten feet, one of them looks at him and screams in this horrible voice, "Go back from whence thee came and mind not us slugs!" SWIM looks all around: no visuals whatsoever of anything, no shapes, odd colors, no movement of objects, nothing. Then lights kick on, as does all this machinery around SWIM: the stereo starts making this horrible static noise, his cell phone makes a loud popping sound and goes dead (and it will still not power on). SWIM hears engines starting up all around him. SWIM is terrified and jumps back into his vehicle. SWIM watches the lights continue to go on and off all around him, and still—these demons are now *fighting* each other, and one appears to be trying to eat the other... it *does* eat the other. The moment it consumed the other, the lights went off, the sounds of the engines died, and the creature faced toward SWIM. Then it simply took its hand, drew/cut a hole in the air, and climbed through it. And the trip was over.

Damn, what happened to his spice?! There are no visuals, there's no body load, nothing.

° No strange tryptamine landscape. Nothing. Not that there ever *was* any tryptamine landscape, because their wasn't. SWIM is dumbfounded. He realizes his nose is running, as well as his eyes, and when he reaches up to dry the moisture, he discovers there must be half a quart of liquid running from every orifice on his face. SWIM tastes blood in his throat, and his chest hurts horribly. He does not understand what he saw. He knows of no such effect on mucous membranes by any tryptamine. This was not DMT. What the fuck happened to SWIM's spice? What the fuck happened to SWIM?! °[24]

Experience with Tan Waxes Over Time

°THE EFFECTS OF the tan waxy extract are amazing to say the least. SWIM has pulled it several times and every time it has been the same. It changes radically with oxidation, becoming way more potent and qualitatively different as time passes. If smoked within the first few days of pulling it, it produces a heavy body load that feels like you've been shot with elephant tranquilizer, and lasts about fifteen minutes. There are no pronounced mental effects of any kind. However, upon repeated exposure to air over a few weeks, this extract becomes the most "trippy" substance that he has ever encountered. It produces wild hysterical laughter, massive size distortion in objects, and insane colorful hallucinations of things like cot-

ton candy, pink clouds, puffy pink dragons, and giant blue marshmallows. I know this sounds like total bullshit. I probably wouldn't believe it either, but it is true. It is very easy to find out—I highly suggest everyone try the oxidized tan wax at least once.°[24]

°THE ROCK STUFF SWIM pulled carried only a heavy body load. After several weeks the substance got increasingly harder, darker in color, and it changed in smell. SWIM smoked it maybe five times during the first seven to ten days after pulling it, producing only a heavy body load with no trippy head effects whatsoever.

°SWIM tried it again when he was bored after a couple of weeks and found that it had gone through some serious changes in the effects it produced, aside from the change in texture and color. It became really trippy. No real mental breakthrough or extreme DMT visuals or anything like that were produced, but it carried this *insanely* pleasant laughing/singing. There were no more heavy body effects. SWIM smoked five hits on his bed, and had difficulty getting the last one because he was laughing so hard. The next thing SWIM knows, he is raising up and down off the bed like Linda Blair in *The Exorcist*, laughing his ass off in this *incredible* very "tryptamine-like" state that lasted at least a half an hour. SWIM wound up smoking about twenty hits over a four-hour period and it was *great*! SWIM smoked all he had left the next night. Whatever it was, it was phenomenally wonderful!°[11]

Isolation Techniques

The original version of this article contained a few additional isolation techniques, including "Critical Switch's Tek," which was the first process posted on-line (on Vovin's boards) that described a method for obtaining jungle spice. However, as that tech was both overly long and lacked useful details related to pH (making it harder to replicate), it has not been included here. For space reasons, we have limited the number of extraction processes included to three that will return the three different sorts of material discussed in the article. — Eds.

RED JUNGLE SPICE TEK[18]

by Entheogenist

°This process will not only produce very potent jungle spice, but it will also pull out any DMT that has been left behind in the basified solution.

°After you have done your nonpolar extraction (see the Marsofold Tek or the Noman Tek at entheogenreview.com/dmt.html), save your basified solution. For 500 grams of root-bark, use 500 ml of toluene. Heat it in a water bath until it's steaming. Add the toluene to your basified jug and tilt for five minutes. It's best to divide the toluene into three or four pulls. While waiting for the layers to separate, put the toluene jar back in the water bath to keep it hot. After you have siphoned off the toluene layers, evaporate the toluene and let the solids dry. This material contains the jungle spice, but there is usually quite a bit of DMT in there also. Scrape up this material and put it in a test tube.

°Now heat some heptane in a water bath and fill up the test tube with hot heptane and agitate the mixture until the heptane clouds up and an oily layer forms in the bottom of the tube. Let this mixture cool for a minute or two so the oily layer will thicken a bit. Now quickly pour off the heptane onto a plate for evaporation, making sure the oily layer stays in the test tube. When the heptane evaporates you should be left with DMT (you will want to recrystallize this product). Add more hot heptane to the test tube, then pour it off and evaporate one or two more times until no more DMT is being pulled out.

°You should be left with a thick, deep red oil in the bottom of the test tube. This is your jungle spice. To get it out of the test tube, place the test tube in a hot water bath. This will cause the oil to pour more easily, and evaporate any remaining toluene. When it's nice and hot, remove the tube from the bath and immediately pour it out on a plate. (Some oil will still stick to the test tube, which you can rinse out with a very small amount of hot toluene and pour out for evaporation on a different plate.

It will yield slightly less pure jungle spice.) The oil you poured off will slowly harden into a waxy solid. It takes quite a while to dry out, but you can speed the process by smearing it around with a razor blade, then scraping it up and smearing it around again, and so on. Make sure all the toluene has evaporated before you bag this stuff, or it will turn to oil again in the bag.

° As to the water bath temperature, heptane boils at 98.42°C, so as long as the water bath is not boiling, you'll have no problem. It won't ignite in a water bath. Just be sure to "burp" your test tube periodically so the pressure doesn't build up. It needs to be hot so it will melt the insoluble jungle spice and pull out any DMT that is trapped inside the insoluble solids. Shake up the test tube so the red oil goes all through the solution and then settles again at the bottom. At this point I would set the test tube in the water bath for a moment to help the layers separate, then pour off the heptane on one plate and the red oil on another plate. The heptane will evaporate very quickly since it is hot, leaving white DMT. The oil will slowly harden into pure red jungle spice. This jungle spice is very potent; 25 mg is comparable to 50 mg of DMT! °

Isolation of Tan Wax[24]

by an unknown author

This isolation process is fairly unique in its use of a binary extraction solvent. From the available evidence, it seems reasonable to assume that this heptane/diethyl ether solvent is pulling a fraction that is also pulled by xylene or toluene, though there is some evidence it may leave behind the red material that aromatic solvents will pull.[11,18]

° Extracting the tan wax is trickier; it requires the use of a solvent blend of roughly eight parts diethyl ether to one part heptane. It also employs naphtha and acetone.

° One follows a normal DMT extraction process (see the Marsofold Tek or the Noman Tek at entheogenreview.com/dmt.html), except one uses the diethyl ether/heptane blend as the solvent instead of naptha. Freeze precipitation for crystallizing is a must here. Your material will be *very* yellow. Some of this yellow tint is natural plant fats, some is oxidation caused by the extraction process, and more still is the targeted mystery alkaloid(s). The yellow you would have seen if you had used only naphtha, would have been only the former two—none of the mystery alkaloid(s) come(s) out unless you use diethyl ether.

° Pull all of your extract from the root-bark, allow it to dry, and you'll have a nice big pile of yellow material. Next you will recrystallize in the freezer and get your tan wax. Pour all of your extract powder into a glass container for recrystallization. The container needs to have an absolute flat bottom. Place it on an electric stove or hot-plate at the lowest setting, cover your powdered extract with a measured amount of naphtha (use increments of 10 ml for the amount of naptha added) and proceed to dissolve it into the naphtha. Use enough naptha to entirely dissolve the extract, but try to keep the amount on the lower side of things (adding 10 ml more at a time as needed). After the extract has dissolved, add one drop of acetone for each 10 ml increment of naphtha you used. You should note a thick yellow oil coat the bottom of the container. This is your mystery alkaloid. Use a glass eyedropper to remove all of the liquid solvent (this contains your DMT), and place that solvent in a separate container for freeze precipitation.

° Now you have a glass in which the bottom is coated with your mystery alkaloid(s). It takes forever to dry, so before it does you should clean it a little further. Drop some more naphtha on it while it is still hot (return it to the electric hot-plate if needed). Don't add any acetone this time. Stir this up a bunch, and traces of DMT should come out of the oil at this point and migrate to the naphtha. If you don't mind yellow DMT, put this naptha into the container with the rest of the DMT that you just removed. Then let the material in the bottom of the container dry. Scraping it around a bunch while it is drying helps tremendously. In the end, you should wind up with something hard as a rock. °

Preparation of Yellow Spice

by Delafonze19

° After freeze-precipitating DMT, the naphtha is poured off and the solids are allowed to dry in a jar. Hot water is then run over the outside of jar, melting the DMT. This process promotes the conversion of the white crystals into yellow oily crys-

tals, which are reported to be more enjoyable than white spice. If the yellow oily crystals are left out with moderate exposure to air for a week, the process appears to proceed further toward "completion," turning the material into a yellow goo (Delafonze19 2008).°

The Hard Data

Attempts have periodically been made to shed light on the nature of jungle spice by use of GC/MS, LC/MS, or TLC.[4,5,8,15,23] While the evidence is limited at this point, preliminary data substantiates the idea that some people are isolating DMT-N-oxide, and possibly a degradation product of yuremamine.[5,15] The other major conclusion that seems to have come out of these attempts is establishing that no unique chemicals besides DMT can typically be seen in GC/MS analyses, while LC/MS shows a wider range of compounds (Vepsäläinen et al. 2005).[8,15]

Mass Spectrometry Analysis

Let's first consider the case of a "clean" extraction. In *The Entheogen Review* 13(2): 49–50, Mambo Pachano presented an "Extreme Condition Extraction of *Mimosa tenuiflora* (= *M. hostilis*) Root-bark." The initial extraction was done with aqueous ethanol acidified to pH 1 with citric acid. The extract was evaporated, taken up in warm water, and defatted with xylene (presumably removing any jungle spice). The water was basified to pH 14 with sodium hydroxide, extracted with toluene and the spice recovered by evaporation. "This method has reliably produced a pale yellow, waxy-crystalline solid that crushed to white powder" (Pachano 2004). GC/MS was performed on the resulting product alongside a DMT reference standard (see tinyurl.com/6od8qm). On the standard, there's an abundant molecular ion at 189.1 *m/z*, and a less abundant peak at 144.1 *m/z* indicating the loss of the dimethylamine moiety. I'm curious what the trace just above 400 *m/z* is, since the same trace appears on the analysis of the extracted sample, but it's likely of no particular consequence. The extracted sample appears to be extremely clean, especially when we consider that it was collected by evaporation instead of freeze-precipitation or recrystallization, and using toluene, which is known to be less selective than the usual alkane solvents. There is a small impurity (abundance ~2) at 205.1 *m/z*, which could easily be accounted for by DMT-*N*-oxide. This helps to substantiate the idea that the yellow oil is DMT-*N*-oxide, since the product was collected by evaporation, and was described as "pale yellow, waxy-crystalline" material.

Next we consider a crude extract of the "jungle" alkaloids. This analysis was communicated by Radio879 from the Nook, who remarked, "I *think* this was the one where I used xylene instead of naphtha, but I did not wash it with naphtha. [...] In that sample it looks like there's 86% DMT, then four other unknown compounds."[21] There actually only appear to be three unidentified compounds in this spectrum. I assume that the "fourth compound" is the peak at 144.1 *m/z*, which is generated from DMT. For all three of the unidentified peaks, I believe I can propose some reasonable assignments.

130.1 *M/Z*

This peak had me mystified for a long time. It's too small to be a tryptamine, and barely large enough to be an indole. But reading through *Ayahuasca: Alkaloids, Plants & Analogs* by K. Trout, I saw that one concern related to the extraction process was the elimination of an indole called "skatole." While large amounts of skatole smell like shit, lower concentrations of it have a flowery smell (it is actually a component of several flowers and essential oils). The *Mimosa* root-bark extract discussed by Trout "had only a faint floral smell indicating substantial purity and lack of skatole. [...] Alkali solutions of pH 14 will destroy skatole (the strong smelling compound that many people mistakenly think is the smell of DMT...)" (see tinyurl.com/6od8qm). This description may shed some light on the floral aroma that has been reported when using less selective solvents.

Skatole, or 3-methylindole, is a white crystalline compound that turns brown over time, and has been described as "mildly toxic." It has been shown to cause pulmonary edema in some lower mam-

mals, apparently targeting Clara cells, which are the major site of cytochrome P450 enzymes in the lungs. These enzymes convert skatole to a reactive intermediate, 3-methyleneindolenine (Miller et al. 2003), which damages cells by forming protein adducts. I have been unable to find any source that explicitly verifies skatole as a known compound in *Mimosa* spp., but it certainly seems conceivable. It could explain why people sometimes get a material that looks like DMT and "smells like DMT," but lacks the effects of DMT when smoked. The 130.1 *m/z* molecular ion corresponds perfectly with a methylated indole. While this issue requires further analysis to confirm the identification, it seems entirely plausible. Especially if a source identifying skatole as a component of *Mimosa* spp. root-bark can be located, I would be satisfied with the identification of this peak as 3-methylindole.

205.1 *M/Z*

This is the same peak that was seen as a trace component of the "clean" extract's GC/MS. Being exactly 16 *m/z* higher than DMT's molecular ion immediately suggests that this could be an oxide of DMT (the most reasonable place being at the tertiary amine). Since the sample was obtained by evaporation and not cleaned with alkanes, we would expect some of the yellow oxidation product to be present. The issue requires further study: specifically someone running GC/MS and NMR on the purified yellow oil. But until then, I am fairly comfortable with the assignment of this peak as DMT-*N*-oxide.

350.1 *M/Z*

This one is a doozy, and is the primary clue suggesting that people may have been isolating a breakdown product of yuremamine. The peak is substantial: less abundant than the proposed 3-methylindole, but more abundant than the DMT-*N*-oxide. It's heavier than DMT, and lighter than yuremamine. In any case, it hardly seems possible that yuremamine could survive the extraction process (Vepsäläinen et al. 2005).[13,18,20]

But when yuremamine is degraded during an extraction (presuming that it is present in root-bark), it's not as though it would just disappear. Unless it loses the ethylamine moiety, the breakdown product still ought to be amenable to acid/base extraction. Some quick calculations indicated that the loss of either hydroxylated phenyl group could get the molecular mass in the ballpark of 350 *m/z*. And there's that handy hydroxyl adjacent to each of them that could participate in the degradation chemistry. In the end, I came up with two plausible degradation products that would give rise to a molecular ion at 350.1 *m/z*. Unfortunately, the peak is not abundant enough to analyze its fragmentation pattern. I should also note that I'm not particularly qualified to suggest a mechanism to either proposed 350.1 *m/z* compound, so it's difficult to tell how reasonable my assignment may be. Nevertheless, it would not be surprising if the molecule giving rise to this peak turns out to play a critical role in the psychoactivity of the jungle spice. It's also worthwhile at this point to discuss what we would expect to see if the jungle spice were in fact yuremamine, which to date has only been reported from the *stem*-bark of *Mimosa tenuiflora*. Yuremamine has a molecular ion at 477.2 *m/z* (Vepsäläinen et al. 2005). This peak has been clearly absent from every known analysis of the jungle spice. It also was not seen in any of the analytical work on *M. hostilis* root-bark or *jurema* conducted during the 20th century. This has led to the speculation that yuremamine is subject to degradation under most extraction conditions, particularly under high temperatures or alkaline environments (Vepsäläinen et al. 2005).[13,18,20]

Finally, we have a more recent account of GC/MS analysis run on the red spice that reportedly came from either a toluene or a diethyl ether pull of an acid/base extraction:

> °GC/MS and GC/FID indicate that the main compound is DMT (nothing else showed up in the GC/MS, but there were minor additional peaks in GC/FID). This is curious, because the whole reason SWIM *has* this stuff is because it was not soluble in hexane.°[8]

This is a confounding result. The material was a red crystalline solid isolated based on its insolu-

bility in hexane, which certainly sounds like jungle spice.[15,18] We would expect very little of the material to be DMT due to the hexane wash, but DMT was still the primary peak in the sample.[8] *[Hexane is a somewhat lousy solvent for DMT; while it most certainly can work, it tends to be used for crystallization and not extraction for just this reason. — Eds.]*

While it's possible that the sample analyzed was not the same material that others are calling jungle spice, this seems unlikely since it matches the same physical description and was isolated in the same fashion. The material was also reportedly stored for several months prior to analysis,[8] so it's possible that the compound(s) of interest degraded during that time. Or, for whatever reason, the red component may not be amenable to GC/MS; based on the presence of more diverse peaks in LC/MS spectra, I tend to lean toward this possibility. *[It is worth noting that it has been claimed that tryptamine N-oxides readily degrade in the injection port of the gas chromatograph, apparently making them undetectable via GC/MS (Kamata et al. 2006). — Eds.]*

There are two other possibilities, if we take the spectra at face value and assume that DMT is overwhelmingly the main component in the red spice. The first of these possibilities is that the red coloration comes from a biologically inactive tannin, and the activity of the red spice is solely the result of DMT. I don't consider this possibility to be very likely, based on the wealth of experience reports reporting breakthroughs on significantly smaller doses than DMT could provide. The other possibility, assuming that DMT is overwhelmingly the main component in the red spice (which I'm not necessarily convinced of), is that the trace impurity responsible for the red discoloration *is* biologically active and accounts for the reported effects of smoking red jungle spice. If this is the case, it could either be acting as an agonist in its own right (adding its effects to those of the DMT), or it could be potentiating the DMT in some fashion. Since no trace components were identified in this particular analysis, it is impossible to speculate further.

Thin Layer Chromatography Analysis[4]

To view color photographs of some of the TLC plates described below, and to obtain more specific information about the processes used to run the plates, see the original version of this article, posted at entheogenreview.com/junglespice.html. — Eds.

° I did some TLC tests recently that showed at least three compounds in a *Mimosa hostilis* root-bark extraction. #1 was DMT, and at first I thought that #2 might be 5-MeO-DMT, and that #3 might be either DMT-*N*-oxide or 5-MeO-DMT-*N*-oxide. None of the spots showed up as what I would consider trace amounts.

° Further TLC runs on this same extract (after four days) failed to show the blue spots in #2. This is *not* 5-MeO-DMT, as I thought that it might have been. In the solvent system I used, it showed the same Rf and color reaction to xanthydrol as 5-MeO-DMT. However, the compound on the plate is unstable and disappears. A recent post on the Ayahuasca Forum leads me to believe that this may be yuremamine.

° To obtain the extract, I used a standard acid/base extraction for the first lane in my TLC, and toluene for the third lane. I'm interested in the red/pink/purple coloration that is common to many tryptamine-bearing plants. It comes from tannins (lots in this case) and I also believe an oxidized tryptamine. Its the oxidized compounds that are tricky...

° After the blue spots no longer showed up, I ran some other tests on this same extract. I used a different developer for the plates (one that resolves 5-MeO-DMT and DMT better). There was no blue spot (as expected), but the one trace in the original plate remains. I ran this against an oxidized sample of the initial extraction, and the trace is not DMT-*N*-oxide (it shows as a very different Rf); it's yet another trace compound. Not sure what yet. The oxidized sample, when left to evaporate, yielded a yellow oil that smells very floral and did not want to crystallize.

° Yuremamine shows up in methanol extractions, and it seems not to show up in a standard acid/base extraction. Yuremamine decomposes under alkali conditions, and these decomposition prod-

ucts are likely to be the "jungle spice," which I will refer to here as "yuremamine degradation product," or "YDP." Bioassays published in *The Entheogen Review* indicate that cold water extracts of *Mimosa hostilis* root-bark sans additional MAOI are orally active; yuremamine is suspected as the reason for the oral activity. *[The author of this analysis report is presuming that one chemical he has found is yuremamine, and the text that follows states this as though it is a fact. The idea that other chemical(s) are degradation products of yuremamine is also a presumption. Although either or both of these presumptions may be true, either or both also may* not *be true, and the identification of yuremamine was not verified with a reference standard so far as we can tell. — Eds.]*

° Two grams of ground *Mimosa hostilis* root-bark were extracted for an hour in 10 ml of room-temperature water. This was done twice, with the extractions combined. These extractions were spotted directly on the plates. The first lane was the control: a standard acid/base extraction completed earlier. Visualization was done with the bare plate, and xanthydrol.

° Plate #14 was run in an acid environment, so as not to degrade the yuremamine. Lane 1 is the control showing DMT (Rf @ B) and a YDP (Rf @ A). Lane 2 is the water extract and Lane 3 is the methanol extract both showing DMT (B) and very likely yuremamine (C). Lanes 4 and 5 are lanes 2 and 3 before visualization with xanthydrol. What's interesting here is that the pre-viz lanes show the C spots as blue and the spots as purple after visualization. The YDP does not show up in lanes 2–5 (the pencil lines on the right just indicate *all* Rf positions).

° Plate #12 was run in an alkali environment. The layout of lanes 1–3 remains the same, but we see a reversal of yuremamine and the YDP Rf values in relation to DMT. However, since this is run in an alkali environment, we see the YDP showing up in lanes 2 and 3 as the spots travel up the plate and degrade the yuremamine, which now only shows as a smaller trace component. By the time the plate was fully developed the blue spots on the plate before visualization had disappeared. They remained for about half of the run and then were gone by the time the plate finished.

° In Plate #18, the reference is in lane 1, the visualized methanol extraction in lane 2 and the pre-visualized methanol extraction in lane 3 run in an alkali environment for half of the plate (half of the distance to reduce the time spent in the alkali environment). Here A is DMT, B is the YDP, C is yuremamine, D and E I believe are yuremamine being broken down and have not had a chance to settle into a true Rf value as the plate run has been shortened. *[The blue E spot in lane 3 is a tannin. — Entropymancer]*

° My conclusions are thus: both methanol and room-temperature water will extract *both* DMT and yuremamine, and a trace component found in standard acid/base extractions is a YDP. Yuremamine seems to be visible on the plate without a visualization agent, and I suspect that it fluoresces (but I have not checked). The oral activity of a cold water extraction could very well be due to yuremamine acting as an MAOI making the DMT orally active (since DMT *is* being extracted), and/or it could be active by itself. Also, while water will extract DMT, methanol seems to be a little more efficient. Lastly, the tannins are hard to deal with, and reading the plates would be easier without them present (they are the red streaking).°

Botanical Confusion

Mimosa tenuiflora *has been accepted by many as the correct taxonomic orthography (considered synonymous with* M. hostilis*) since the 1991 publication of* Sensitivae Censitae: A Description of the Genus *Mimosa* Linnaeus (Mimosaceae) in the New World *by Rupart C. Barneby. While Barneby noted that the leaves of Brazilian* M. hostilis *were slightly different from those on the* M. tenuiflora *of Venezuela, he based his decision to lump them on the fact that within a population of either one, an individual could be found that was identical to another individual that could be found within a population of the other one. He never stated that the larger populations could not be told apart (just the opposite), but rather he simply lumped them based on the idea that the range of expression within both didn't merit each one being described as a unique species. Further study may show that* M. hostilis *is deserving of being awarded subspecies status within* M. tenuiflora, *and it is certainly possible that the chemistry of these plants may vary, regardless of what one calls them. — Eds.*

I'm not satisfied with the extent to which *Mimosa tenuiflora* and *M. hostilis* are identical. Nevertheless, it is well-established in the literature that these Latin binomials are synonymous (they will be used interchangeably in the text below) and they are both legitimate names to apply to the white-flowering tree from which root-bark available on the entheobotanical market is theoretically being harvested. But to complicate matters, there are indications that the *M. tenuiflora* name is sometimes being applied to another *Mimosa* tree, which does not have white blooms.[7,151]

Following some catastrophic events in Mexico in the 1980s, *M. tenuiflora* stem-bark—under the name *tepescohuite*—was hailed as a miracle-treatment for burns when applied as the active ingredient in a topical ointment (Camargo-Ricalde 2000). This gave rise to a proliferation of tepescohuite throughout southern Mexico, which may have resulted in two problems. First, it seems possible that some sources claiming to sell Mexican root-bark to the entheogen-interested market are actually distributing *stem*-bark, due to it being already widely available. The second problem is that I'm not convinced that everything harvested from the "tepescohuite tree," whether stem-bark or root-bark, is actually coming from *M. tenuiflora.*

There are several vendors peddling tepescohuite ointments, soaps, and skin products, whose advertising depicts a tree with either bright yellow or bright pink flowers; in both cases it's claimed to be *Mimosa tenuiflora* (search Google Images for "tepescohuite" to see some pictures). Since there has been a high demand for these products, and since several *Mimosa* species have similar appearances, someone may have unknowingly or unscrupulously begun propagating another species as tepescohuite. On the other hand, some kitchen chemists claim that the commercially available Mexican root-bark has a higher alkaloid content,[28] so the possibility of misidentification doesn't necessarily mean an inferior product for extracting purposes. And since it is common for web-based vendors to hoover photographs and illustrations from other sites, these errors in flower color could be largely due to ignorance and sketchy web-site creation morals on the part of advertisers, rather than on misidentified botanicals.

However, another factor casting doubt on the identity of the root-bark relates to some of the seeds that have been made available on the entheobotanical market. Consider what Torsten of Shaman Australis had to say a couple years ago:

> ° *Mimosa* species can contain some nasty alkaloids, which is why correct identification is paramount in my opinion. That is why I am so appalled at the callous nature of *Mimosa hostilis* root-bark farmers, distributors, and retailers. I am also a little surprised at the ignorance of the customers. I mean seriously, you folks seem to only care about the fact that a plant contains DMT regardless of what else you might consume along with it.
>
> ° So is there a conspiracy to supply dodgy material? I don't know. All I know is that two of the largest *Mimosa hostilis* root-bark farmers also supply seed from their plantations to various wholesalers and retailers. I have purchased plenty of this seed for my own shop and have bought seed from most major retailers. *None* of it has turned out to be from *M. hostilis.*°[15]

More recently, Torsten remarked:

> ° My remarks above are a few years old and things change. There are now reliable bulk seed sources in Brazil and all around the world from collectors who got some good seed. However, I think it will still be years before the seed trade could be regarded as reliable. For the moment, most retailers still have the seed that grows into pink-flowered plants.
>
> ° As for root-bark, I don't think much has changed. The main sellers are still those who have pink-flowered plants. Some of them know they have the wrong species, but don't care because they just sell for the effect and *Mimosa verrucosa* works well. Some of them insist that *M. hostilis* has pink flowers and hence their material is accurately labelled as far as they are concerned.
>
> ° Retailers by-and-large don't care as long as the root-bark works. But even if they *did* care, I doubt they would get much reliable info for the reasons

> outlined above. I only got these admissions because I grew their seed and proved to them that they were wrong.°[23]

The seeds that have been distributed in the past as *Mimosa hostilis* usually produced plants that are of the genus *Mimosa*, but which are definitely not *M. hostilis* (Torsten 2008).[13,15] At present, while at least one vendor has begun selling seeds that actually give rise to a *M. hostilis* tree, most of what's available produces other *Mimosa* species, particularly *M. verrucosa* (Torsten 2008).[7]

Mimosa verrucosa as "jurema branca," is used by some indigenous South American populations, and *Mimosa tenuiflora* is known by some as "jurema preta." However, nomenclature appears to be variable among indigenous populations, with both names (and others) being applied to both species, depending on which tribe is discussing the plants.[14] Consider the following from an issue of the *MAPS Bulletin*:

> After interviewing many people, and participating in different Jurema rituals with the Indians, I also realized that the Jurema they drink in their brew is not *Mimosa hostilis*, but the root bark from *Mimosa verucosa* (sic). Different tribes will call *M. hostilis*, the Jurema Negra and *M. verucosa* (sic), the Jurema Branca, as well as other tribes call *M. verucosa* (sic), the Jurema Negra. That means that when they say that they drink Jurema Negra, it does not necessarily mean they are drinking *M. hostilis*, but *M. verucosa* (sic) which is called both: Jurema Branca and Jurema Negra (Silveira Barbosa 1998).

Jonathan Ott has pointed out that assorted indigenous groups employ "one or another type of *jurema branca*, of which some 10 species have been reported from 4 genera," citing references for *Acacia jarnesiana*, *A. piauhyensis*, *Mimosa burgonia*, *M. pudica*, *M. verrucosa*, *Pithecellobium acacioides*, *P. diversifolium*, *P. dumosum*, *P. tortum*, and *Vitex agnus-castus* (Ott 2000).

In years past, commercially available misidentified seeds produced *Mimosa pudica* or *Mimosa scabrella*,[34] but these appear to have faded from the marketplace. Sometimes genuine seeds have been acquired through trades with people in possession of genuine specimens. Properly identified live plants are also sometimes traded amongst the entheobotanical community.

The scarcity of genuine seeds and the concurrent abundance of misidentified seeds begs the question: Have imported root-bark samples been similarly misidentified? After all, it doesn't make much sense that a vendor would be able to acquire legitimate *Mimosa tenuiflora* root-bark, but unable to acquire legitimate seeds from the same source.[13] On top of this, Torsten of Shaman Australis has reported seeing a photo of the *Mimosa* plantation from which a major vendor obtained its root-bark, and the flowers on the trees were pink.[14,15] And none of the vendors I contacted had any idea what color flowers were produced by the trees that their root-bark was obtained from.

Mimosa tenuiflora has whitish or greenish-white flowers. It does not have pink flowers or yellow flowers. Theorizing about a pink- or yellow-flowering subspecies of *M. tenuiflora* (as some forum members have), is inconsistent with the established botanical definitions.

This leaves us with a jumbled picture that casts a significant shadow of doubt over the botanical identity of the root-bark that's being imported. I have a hard time imagining that 100% of the vendors have been selling misidentified product, so I'd wager that at least some of them have been selling legitimate *Mimosa hostilis* root-bark. But considering the scarcity of genuine seeds, I'd be hesitant to speculate that authentic *M. hostilis* root-bark is prevalent on the market.[13,15] Further, it seems likely that some of the root-bark available on-line comes from *M. verrucosa*. Unfortunately, unless vendors can find out what color flowers their suppliers' trees produce, it is impossible to speculate on the degree to which *M. verrucosa* is being sold as *M. hostilis* (Torsten 2008).[13] *[It is worth noting that* Mimosa verrucosa *root-bark looks quite different than* M. tenuiflora/M. hostilis *root-bark; see www.entheogenreview.com/root-bark — Eds.]*

Yet despite all of the indications that some commercially available root-bark may not be from *M. hostilis*, I've only heard a few reports, some years ago, of alkaloid-free batches of root-bark being sold. Extractions of these would yield a clean white material with the physical appearance of DMT, which produced no effects when smoked (possibly indicating that the root-bark was from another species).[13,15] There are still periodic reports of low-yielding root-bark from various vendors, but these samples contain at least some DMT. It is worthwhile to note here that at least one former vendor, JLE, openly advertised that the product they sold was the *stem*-bark from *Mimosa hostilis*, which is of a different chemical composition than the root-bark, and likely contains much lower quantities of DMT (Meckes-Lozoya et al. 1990).

For those concerned solely with isolating DMT, it probably doesn't matter whether the available root-bark is actually *Mimosa tenuiflora*. Whatever it is, it has for the most part been reported as an effective source of DMT.

There has been some speculation about the possible dangers of a misidentified root-bark. The most frequent concern is that the unknown root-bark may contain mimosine, a toxic clastogen (chromosome-breaking chemical). First discovered in *Mimosa pudica* (Renz 1936), mimosine has been found in several leguminous trees (Soedario et al. 1994), and it could possibly be a component of other *Mimosa* species. Although stem-bark of *M. verrucosa* has been analyzed for antioxidant chemicals (Desmarchelier et al. 1999), no analysis of *M. verrucosa* root-bark has yet been formally conducted or published (Ott 2000; Trout 2007), so it remains unknown if mimosine is present in commercially available root-bark. If, for safety's sake, one assumes that it is present in the root-bark, it appears easy to make certain it doesn't end up in the final chemically isolated product. Mimosine is much more polar than DMT, and is practically insoluble in higher alcohols, ether, benzene, chloroform, etc. This means that very little mimosine is apt to end up in the nonpolar pulls when one extracts the DMT free-base. Since mimosine is substantially more soluble in water than in nonpolar solvents, a sodium carbonate wash ought to remove any residual mimosine. *[While we agree that possible toxins from unknown root-bark are not too worriesome for those who are isolating DMT, there is a greater potential risk for those who are merely doing a cold-water extract of jurema, or who are using the root-bark as an ayahuasca analogue via a tea brewed with a MAOI plant. — Eds.]*

That's all well and good for the average DMT isolator, but what about the folks pulling jungle spice? It is tempting to speculate that some of the variability among jungle spice extractions may be a result of root-bark from different species of *Mimosa* being sold. Unfortunately, until someone runs extractions of jungle spice using confirmed samples of *M. tenuiflora* and *M. verrucosa*, we simply don't know.

There is also the possibility that variation in jungle spice extracts may be accounted for by differences in environment or harvesting conditions.[2] Maybe the tree needs ample access to a particular soil nutrient to produce a good portion of jungle spice. Maybe the quantity of this alkaloid fraction varies with the time of year, or even with the time of day. Maybe the tree must reach a certain age before it begins producing it. Or maybe the variability of extracts has to do with unrecognized nuances in the extraction process. Set, setting, and dose could also contribute to the variation in reported effects.

Finally, it is worth mentioning that confusion over the botanical identity of available root-bark may explain why a few people have been unsuccessful in verifying Jonathan Ott's claims that jurema is orally active without an added MAOI (J.S., OR et al. 1999). The individuals who were unsuccessful may have been using *M. verrucosa*, while Ott was using *M. tenuiflora*.

Clearly there are a lot of loose ends that need to be wrapped up. It is my hope that this article will spark further investigations that may someday provide more answers to the mystery alkaloid(s) of *Mimosa* root-bark.