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Acacia confusa of Taiwan

Kratom T'ej:
A Modern Approach to an Ancient Beverage

Trichocereus and the Chavin
& more...

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Note From the Editor...

Hello everyone and welcome to the first issue of Dragibus! Dragibus is a quarterly publication with a focus on the botany, cultivation, history, and usage of medicinal and entheogenic plants. In this, and future issues, we will explore the healing and medicinal properties of plants, as well as delve into the lore and mysticism surrounding them.

In this issue, we have a primer on herbal brewing (with a Kratom Tej recipe), a feature on Acacia confusa, a history of the Chavin's use of Trichocereus, and more. We have a lot planned for upcoming issues, including: more herbal brewing, book reviews, interviews, and of course more plant pieces. We also hope to increase the size of the magazine; adding more content and photographs.

I would like to thank all the authors and advertisers who helped make this happen. I hope you all enjoy the first issue and the many to come.

- Steve Rudd

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Trichocereus and the Chavin: A love story

By Donnie Cryder

Photo by Mel

To say that the people of Peru have an intimate relationship with the San Pedro cactus would be unjust. Love spewed out of the green flesh and into the veins of their ancestors, exploding into a ray of light that opens even modern day consciousness. Tune in my friends because there is a story here to be told. A story of such magnitude, that 3000 years have not changed much of its story.

The term San Pedro comes from Saint Peter and is said to have been the key holder to the gates of heaven. This visionary teacher opens the doors of perception and allows us to enter the Spirit world; thus, allowing communication with the divine. In traditional folk healing, those who drink San Pedro's nectar open the flood gates to discover divinity and find purpose. The Huachuma or San Pedro (Trichocereus Pachanoi, T. Peruvianus and T. Bridgessi), the sacred cactus and the visionary teacher plant of the South Americas, is especially associated with the shamans and curanderos of the Peruvian Andes.

When European settlers first landed in this portion of the Americas, they brought with them Christianity. This event dramatically changed the indigenous cultures. European Christianity literally invaded the original region where the use of San Pedro indigenously evolved. One could only imagine what they would have thought; witnessing natives' use of psychoactive plants and particularly, cutting up cactus and drinking the internal goodness. In perspective, couple the use of psychoactive plants with the ceremonial partaking and a negative picture is naturally painted.

A Spanish missionary , as cited by Christian Rätsch, gave the following account:

"It is a plant with whose aid the devil is able to strengthen the Indians in their idolatry; those who drink its juice lose their senses and are as if dead; they are almost carried away by the drink and dream a thousand unusual things and believe that they are true. The juice is good against burning of the kidneys and, in small amounts, is also good against high fever, hepatitis, and burning in the bladder."

For thousands of years, natives from all over the continent have accepted the journey to the great temple of Chavin de Huantar (modern day Ancash) located in the northern highlands of Peru. Chavin de Huantar is a four to five hour journey from Huaraz and is an archaeological site of the Chavin culture. Furthermore, this site is located on a steep slope of the Andes Mountains of Peru; occupied from about 900-200 B.C. Small stones between large blocks were used to create an extremely strong structure. The plaza has survived 3000 years of earthquakes and has increased in strength over time. With each quake, a small stone shifts to an unyielding position. Chavin de Huantar was first described by a Spanish chronicler in 1521.

Chavin is an early (750-400 BC) ceremonial site at the meeting point of three passes. The plaza is perfectly circular and 20 meters in diameter. In Addition, its rivers drain into the Maranon River and then on to the Amazon. The Old Temple was built during the late Initial Period and was the "center of supernatural power and authority." For instance, the Old Temple had a sunken platform in a U-shape opening to the east as well as a circular courtyard in the center. The Old Temple also consisted of numerous passageways and

underground chambers called galleries. These galleries were used for storage chambers, religious rites, and possibly temporary or permanent living for small groups working with temple activities. The Lanzon Gallery is located at the center of the Old Temple. This was where the sculpture of the Lanzon was discovered but since moved. The Lanzon, the supreme deity of Chavin de Huantar, is anthropomorphic. With its feline head and human body, it has intertwined the feline deity of Chavin de Huantar and the shaman of the pre-Chavin period.

Dating back to 1500 B.C., the earliest known depiction of Huachuma is from the circular plaza of the Old Temple at Chavin de Huantar in the northern highlands of Peru. The site and others of the Chavin culture were investigated by Julio C. Tello between 1919 and 1941; more recent investigations include Luis Lumbreras and Richard Burger. As a result, many artifacts have been discovered on the hills. Stone sculptures are scattered along the site; usually carved out of white granite and black limestone. In addition to the stone sculptures, carved stone mortars and pestles, conch-shell trumpets, bone tubes and spatulas, and metal spatulas and spoons have been discovered decorated in Chavin style. Peruvian ceramics made between 1000 and 700 B.C. depict the plant in association with deer. Similarly, another image includes an owl-faced woman holding a cactus. This comes from a ceramic pot from the Chimu culture, dating back to 1200 A.D. According to native beliefs, the owl is a tutelary spirit and guardian of herbalists and shamans; therefore, the owl-faced woman depicted is most likely a curandera (healer) and huachumera. Another fascinating discovery, by Peruvian archaeologist Rosa Fung, includes a pile of ancient refuse at the Chavin site of Las Aldas near Casma. Namely, the pile of ancient matter seems to contain remnants of cigars made from the cactus. The remnants contribute insight into other uses of the Trichocereus cacti. Nevertheless, modern day shamans are only known to use the plant as a liquid brew that is prepared and saved in jars.

Mescaline, 3,4,5-trimethoxyphenethylamine, is the active compound responsible for the effects of the San Pedro's hallucinogenic brew. Mescaline is unique among drugs. This is because the main action is a stimulant of the visual and visuo-psychic areas of the cortex. Mescaline is found concentrated in the green outer flesh of the cactus with up to thirty other alkaloids. While unaware of the scientific aspects of mescaline at the time, curanderos knew of this spiritual significance. To the Chavin people, the green flesh of the cactus was a powerful medicine and psychological healer; hence, grounding them to the heaven and earth and interconnecting their souls with the gods. Additionally, shamans acquired power and authority by claiming they walked in the footprints of the divine. The curandero seeks to perceive unity in the dynamic interaction between the forces of good and evil. They do this through their visions. Shaman achieved a high social status somewhat like that of a preacher/president hybrid. This status was effectively used in the preservation of the sacred cactus. However, the plants vigorous growth and climate aids in modern day availability. The use of Achuma is believed to have been related to the phases of the Moon. In general, nocturnal ceremonies take place during Full Moon nights. On the other hand, there is evidence to suggest more broad use patterns. The ritualistic use traditionally started with the ingestion of a hallucinogenic liquid

extracted from the San Pedro cactus by the shaman and his patients. The Chavin people would have gulped down the concoction somewhere outside of the oracular centers sacred site of the old temple. Afterwards, they would have been led to a tunnel passage to start a journey into the temple.

No account of an ancient experience has survived time, but from modern day accounts and artifacts discovered; one can paint a picture. Here is my pseudo-experience:

Vision blurred by lack of light, yet cataclysmic fireworks paint a mural of colors on your internal canvas. Walking the corridor you are calm and peaceful. With only Huachuma to guide, your equilibrium is in perfect balance despite the terrain. Spiritual forces of this world (puma), the underworld (snake and lizard), and the heavens (eagle) enter your body. Tranquility sweeps itself under your feet and wraps around your being. All of your worldly thoughts leave you at the entry. Further down the cramped tunnel you hear the beautifully piercing sounds of a strombus conch shell trumpet that made its way to your land. The visions gain power over you and enlighten creativity. Thoughts of serenity and divinity overtake your soul. You are hearing the gods speak! The gentle roar of water canals beneath your feet echo from stone to stone adding a soundtrack to your conversation with the spirits. Further down you go. Hands running along the rough stone you feel a rugged carving of a fanged feline holding in his hand the stalk of a four ribbed San Pedro cactus. Spiraling light explodes of out the openings of each finger into your eyes leaving a silhouette of the anthropomorphic being. Your body fills with calmness and love of life oozes out of your dry pours. Suddenly a flash of light distracts out of the darkness. Pace by pace you follow the sparks down deeper and deeper into your consciousness. Dark shadows move back and forth whispering secrets of the divine as chants of the old shaman dance around your mind. Closer you make it to the gigantic white granite carving appearing to reach the skies. The brightness of the moon shines upon it like was God itself. This is the great Tello Obelisk. Covered in etchings of plants and animals sacred to your tribe she speaks to you. To read it would be impossible without the power and clarity that the San Pedro medicine has given you. Gazing upon this massive structure you see your story added to the stone. Does it fall worthy of the caving? Self-realization and adaption is the key. As the mind spins a theory about universe and time, a tranquil peace hovers above you once again. Kneeling before the stone all sound ceases, water stops flowing and the conch trumpets halt. All that remains are you and the Gods you seek answers from. Departing the dark temple you emerge disoriented yet in sequence with mother earth. A fellow tribesman greets you with open arms then directs you to the Shaman for final words. "Take what you have learned from the medicine and use it to correct your wrong doings." "Provide for your people and obey your Gods." "This cleansing of your soul should be a reincarnation for you my son."

One cannot say what the actual experience would have been like for the Chavin, but a truth is evident. The Chavin used their valuable time and resources to enshrine the Trichocereus cactus for a reason. I challenge all readers to make a pilgrimage to the sacred temple. Read an old love story between a people and a plant carved in stone.

Magic Mushrooms and the Worst Pain Known to Man

By Renée Elizabeth Mineart

Samantha was relaxing in the hot water, nothing unusual, and nothing out of the ordinary. She was enjoying her bath, when without warning; a heavy steel crowbar was rammed deep into her left eye. The crowbar was cold, as only steel can get. So very cold in fact; her eye felt on fire. The steel shaft was pressed in deeper and deeper, all the time being twisted to the left and the right. The shaft was gouging out her eye and shredding the optic nerve. After a minute or two of this, the crowbar started prying ever so slowly, in a downward direction and putting pressure on the top surface of the eye-socket. The pressure would increase, and then ease off, only to have more pressure applied a moment later. She could feel in finite detail the top half of her skull being ripped apart. A jagged line had formed across her forehead. Samantha was in agony. She could visualise the bone, first cracking, and then splitting wide open. A few minutes would pass and the crowbar would ease off just a little. Her skull would mend. Thus, Samantha's skull would once again be torn apart a gasp-of-a-breath later.

To Samantha, the 30 minutes that this ordeal lasted seemed like hours. But then, the pain would stop. Just as suddenly as the agony started, it stopped. The pain eased to nothing in the span of about fifteen seconds; leaving Samantha a broken puddle of tears. I wish I could say Samantha's experience was a one off or even a rare occurrence. However, that would only be a lie. No, she knew exactly what was happening. She had been having these sorts of "headaches" for over four years preceding this attack. Her cycle consisted of five or six attacks over the course of two weeks. On the other hand, Samantha would have a two to three week break before the next "cluster" of headaches. Little did she know, things were about to get worse; much worse.

Cluster headaches are often described as the most severe pain known to mankind and sometimes medical science. Of course, this depends on which article you happen to Google. Although Samantha is a fictitious name, the attack I described and her condition is all too real. First, the term "headache" is an inadequate word used to describe this phenomenon. Therefore, I shall refer to the attacks as cluster attacks instead of cluster headaches. Particularly, cluster attacks are believed to originate in the hypothalamus and directly affect the trigeminal nerve. The trigeminal nerve is the largest in a group of nerves in and around the face. The nerve leaves the brain via an array of holes in the skull and is considered a paired nerve. This means there is one on either side of the head. The main function is to provide sensation to the face and controls the muscles in chewing. For instance, have you ever eaten ice cream too quickly? Most people call this common reaction "brain freeze". The trigeminal nerve transfers the cold in your mouth to your forehead and this is often where clusters attack.

Cluster attacks can last anywhere from fifteen minutes to three hours. Sometimes breathing pure oxygen at the onset of an attack can abort it. Or rather one could self-administer an injection of Imitrex. Many sufferers will also try a range of prescription drugs in an attempt to prevent attacks such as Verapamil, Lithium or Topiramate. However, these prescription drugs have a range of challenging side-effects and/or

potential health and mental risks. Forgetfulness, depression, weight gain, weight loss, dizziness and tiredness are just a few of the side-effects on a much longer list of possibilities.

Sufferers often find that these drugs become ineffective in treating or preventing cluster attacks as the body adjusts to them over time. With this in mind, Samantha had initially been on Topiramate for six months. However, she increased her dose every couple of months to keep the drug working. As a result, Samantha reached and then exceeded the maximum effective dose for treating her cluster headaches. Inevitably, Samantha's preventative stopped working altogether. By this time, she was experiencing one to five cluster attacks every two to three days with no breaks in between.

The medical world seems happy to dish out powerful, yet ineffective, medicines for any array of conditions. On the other hand, one can return to Mother Nature for a better solution.

Some sufferers are benefiting from a set of treatments that are proving to be surprising effective and with very little side-effects. What primary ingredient is Mother Nature providing for treatment? Tryptamine. Tryptamine is a monoamine alkaloid found in plants, fungi, and animals. The tryptamine chemical structure is the backbone for a group of compounds termed collectively tryptamines. One such tryptamine is Psilocybin; the primary chemical found in magic mushrooms. Additional, tryptamines are LSD (Lysergic acid diethylamide) and LSA (Lysergic acid amides); extracted from the seeds of the Rivea Corymbosa flower.

Popular in the psychedelic age of the 60's, many countries such as the United States and United Kingdom have made growing magic mushrooms and taking LSD or LSA illegal. Consequently, this has greatly hampered research into the potential medical advances of tryptamines. However, the research has not completely stopped. Recent articles have been published on the benefits of psilocybin in treating depression. Importantly, benefits include considerably less side-effects than conventional medicines. Studies have been conducted recently in the United Kingdom with such an aim. Furthermore, recent studies in the United States with a non-hallucinogenic version of psilocybin are indicating possible treatment options for not only depression, but also obsessive compulsion disorder, alcoholism and addiction. (BBC News, "I took magic mushroom drug psilocybin in a clinical trial", by Dr Michael Mosley, 6 Jan 2011)

For cluster sufferers, the positive effects of even a very small dose of psilocybin can be profound. Initially, one might take magic mushrooms once a week for a month or two in order to break a long running cycle of clusters. But once the cycle is broken, a sufferer would normally only have to take the medication every two to three months to keep cluster attacks away forever.

Additionally, the dosage required to break a cluster attack cycle is much less than what someone would take if they were taking magic mushrooms for recreational purposes. Generally, a cluster sufferer would take half, or even less, than what is required to cause one to trip. In fact, cluster sufferers view tripping as a negative side-affect. Furthermore, most I have spoke to do not enjoy or look forward to tripping. When taking psilocybin, one needs to find the smallest possible does. In the end, the goal is to stop the clusters without causing a significant trip.

Above all, the biggest hurdle of natural sources of tryptamines is people's reaction when someone says they are taking magic mushrooms for their cluster attacks. "Oh yeah, sure; wink, wink, nudge, nudge," is often the response one can expect. This has perhaps been exasperated by the medical use of marijuana and a perception that users will make up any excuse. Of all the cluster sufferers I have spoken with, taking an illegal drug is the last thing they ever dreamt they would be doing. For many, the action is a last desperate resort before suicide. Yes, cluster headaches are so bad they have acquired the nickname "suicide headaches" because of the high number of suicides attributed to them.

Over the course of two months, Samantha took nine doses of magic mushrooms and Rivea Corymbosa seeds. The doses were a week or so apart. In addition, each dose was well below the level to cause much in the way of recreational side-effects. Nearly three more months passed and her clusters attacks significantly improved. When she does experience an attack, the cluster is usually much shorter and less painful prior to psilocybin and LSA. This is something that has not happened as profoundly with any other medication she has tried. More importantly, the pain free gaps between clusters expanded. In five months of this treatment, she has had pain free gaps of up to sixteen days. This has not happened for over a year.

Samantha said, "Before starting on the shrooms and seeds, I had come off all my other medications, and the improvement to my quality of life since taking mushrooms has been profound! I no longer live in fear every day of an impending attack, a fear that would become more oppressive whenever I had one or two pain free days. Because I knew, come the third or fourth day, and WHAM! But now, weeks go by and I nearly forget I have clusters."

As a final point, natural sources of tryptamines such as psilocybin, LSD, and LSA provide tangible relief to cluster headache sufferers. Hopefully, current and future experiments into the medical benefits of tryptamines will break down some of these negative misconceptions.

Kratom T'ej:

A Modern Approach to an Ancient Beverage

by Eli Szabady

Some words of warning:

When brewing with herbs and entheogens it is very important that you approach the situation with upmost caution. Many plants, including an array of entheogens, have a long history of use in brewing, and therefore have an extensive history of safe use. However, there are many plants that have very little or no information pertaining to their use in brewing or interaction with alcohol. Any time you choose to initiate a brewing experiment of this nature, please be sure to take great care in researching the material you are dealing with. Try to find information indicating if the plant has a history of use in brewing. If not, then be very careful about how you proceed. Prior to starting, learn the effects of the herb/material, safe dosage, and if it will be safe to use in conjunction with alcohol.

In the case of kratom, I was unsuccessful in locating any information as to the traditional indigenous use. It is not an FDA approved food additive and is usually sold as "not for human consumption."

Be aware that if you proceed in making this beverage, you are more than likely breaking the user agreement you have entered with the vendor you bought the material from. Perhaps more importantly, you are making a beverage that has a very limited history of use in brewing. The author takes no responsibility for any desired or undesired consequences that may result from your production and/or consumption of the beverage presented in this article, or any other herbal beverage you make and/or consume.

A brief primer on herbal brewing

During a worldwide hops shortage several years ago, I started looking for fermented beverages that used plants other than hops to bitter and keep the brew sterile. This opened up a whole new world of brewing for me. Because brewing with herbs and entheogens requires a greater level of caution than making a standard beer or wine, I decided that I should set some rules for myself. Here are some general guide lines that I try to follow that will hopefully make your herbal brewing smooth and safe as well.

Get a good grasp on brewing fundamentals before attempting to experiment with unfamiliar ingredients. A strong understanding of good sanitation habits is a must, and a working knowledge of the flavors produced by standard brewing ingredients and procedures is crucial to producing a quality beverage. It is always best to end up with something you can enjoy drinking rather than something you have to choke down or throw out. As such, the recipe in this article is not recommended for beginner brewers.

Get to know the herb/plant material you are planning to add to your brew. Make sure you are familiar with the effects of the material and how it will interact with the alcohol before use.

A good rule of thumb is to calculate the amount you will need to add so that the desired effects can be attained by consuming one, or maybe two, bottles of brew. If you need to consume more than this, the effects of the alcohol will more than likely overpower the effects of the plant materials.

Start by making a small batch. Experimenting with brews is fun, but can also end up being very frustrating if something goes wrong and you have to toss the finished product. Cut your losses by starting with a one gallon batch. If the brew is a success, scale up the recipe.

If you are making a beer, use a malt extract. Even if you are an experienced brewer with the equipment to mash grain; start with an extract. This is a good idea in any experiment. Once you know a recipe will work on a small scale using an extract, you can scale it up and use all grain. Again, this can save you a lot of time and frustration.

When you are testing your finished brew, do not drink a whole bottle at once. Remember you are making an extraction into water and alcohol combined; along with additional oils, yeasts, and other compounds). Therefore, you may end up with a stronger extraction than expected. Start by slowly drinking the brew until you can accurately gauge the effects. Also keep in mind that alcohol can potentiate the effects of herbal and plant materials. You can always drink more, but it is hard or impossible to take the side effects back if you drink too much.

Making a Modern Kratom T'ej

While searching for something that could satisfactorily replace hops in my brewing, I experimented with quite a few plants and herbs. I was surprised to find how many plants can fill the same role as hops. Just as hops impart their own flavor and character to a brew, there are many herbs that can lend a very nice flavor to your beverage and also alter the effects of the brew. As I discovered more recipes for herbal beers, I also

found that many entheogens have a long history of use as brewing adjuncts. I compiled a list of entheogenic plants that are commonly used in brewing and I noticed that there was one absent which surprised me. Mitragyna speciosa, or kratom (pronounced ka-tom), did not appear to have any history as a brewing adjunct. In retrospect, this is not terribly surprising, as there is a complete lack of information as to the traditional use, if any, of this plant by people native to the areas in which it grows. This was an exciting moment. I got to be the first person, even if only in my own little world, to make a brew with kratom.

In theory, kratom seemed as if it would be a very interesting herb for brewing. In smaller amounts it is quite stimulating; as the amount ingested increases it becomes sedating. For the purposes of this brew, I wanted to keep the amount per bottle on the energizing side. I felt an energizing tonic would be more useful and using a sedating dose with alcohol could potentially be dangerous. If you choose to increase the amount of kratom called for in the recipe, please do so with caution.

For my first experiment I made a sweet kratom porter. I included hops in the brew because I was, and still am, unsure of the antibacterial properties of kratom. Kratom incorporated into the brew much better than expected. Overall the experiment was a success and a new (as far as I have found) highly inebriating beverage was created.

Several years later, I was looking through some recipe books and stumbled across a recipe for an Ethiopian T'ej. I found the recipe very intriguing and set about finding the necessary components. T'ej is traditionally composed of three ingredients; water, honey, and gesho. Although those are the basic (and often only) ingredients, malted grains and other adjuncts are sometimes added. Gesho (Rhamnus prinoides), otherwise known as shiny-leaf buckthorn or wood-hops, is not only used as a bittering agent, but also carries the yeast that causes the beverage to ferment naturally. Given that gesho is difficult to source in the U.S. I set about finding a bittering agent that would be similar. I did not have any idea what gesho tasted like, but I had wanted to further experiment with kratom in brewing. Therefore, I decided to use it as the bittering agent in my T'ej. I used a package of ale yeast rather than attempting to spontaneously ferment the brew. Using the ale yeast also delivers more consistent results. I have dubbed this recipe a "modern" T'ej.

Ingredients (Makes 2 Gallons)

4 lbs. Raw Honey
3 lbs. Light or amber malt extract (liquid or spray-dried)
2 oz. Crushed Kratom Leaves
1 package dry ale yeast

1/2 tsp. Gypsum (optional)
1/4 tsp. Irish Moss (optional)
1/2 C Honey for priming (optional)

Equipment

12-16 Quart Stainless Steel Pot
Large Metal or Plastic Spoon
Fermenting vessel (at least three gallons)
Air Lock
24 bottles (12 oz. pop top)
Bottle Caps
Bottle Capper
Siphon Tube
Strainer
Sanitizer (one-step sanitizer or bleach solution)
Food Thermometer

Procedure

1) Put two gallons of fresh, clean water in your pot. If you choose to use gypsum to harden your water, add it

now. Bring the water to a boil.

2) Once the water has reached a rolling boil, slowly add the malt extract stirring constantly until completely dissolved. Return to a rolling boil; boil uncovered for 30 minutes, stirring frequently. If you are using a pot smaller less than 16 quarts, be sure to keep a close eye on the liquid so it does not boil over. This makes a terrible sticky mess.

3) Slowly pour in the honey; stirring constantly until completely dissolved. Return to a rolling boil; boil uncovered for 25 minutes, stirring frequently. If you choose to use Irish moss, add it after 15 minutes.

4) Add the crushed Kratom leaf, and stir thoroughly. Boil uncovered for 5 more minutes.

5) Remove your pot from the heat, and cool it as quickly as possible. The best way to accomplish this, with no additional equipment, is to cover the pot and place it in an ice water bath in your sink.

6) Once the liquid has cooled to 70-75 degrees Fahrenheit, gently poor the contents of the pot into your fermentation vessel. You will need at least a three gallon vessel; however, a five gallon or larger fermenter would also be fine. Make sure to get the entire contents of the pot into the fermenter. You want all of the leaf material in the fermenter throughout primary fermentation. If necessary, add cool clean water to bring the total volume up to two gallons. Sprinkle approximately half of the packet of ale yeast (4 grams) on top of the liquid in your fermenter. If there is enough leaf materials floating on the surface to prevent the yeast from sinking into the liquid, then give it a good stir with a large sterile spoon. Seal your fermenter and put an air lock in place. Set your fermentation vessel in a cool dark place.

7) Fermentation should begin in 12-36 hours and last for up to three weeks. During this time, try to maintain a temperature of 70-75 degrees Fahrenheit.

8) After 10-14 days the bulk of fermentation should be complete and the liquid should now be siphoned off into a secondary fermentation vessel. This is done for two reasons: The Kratom leaf should now be removed from the liquid as the extraction of the alkaloids should be complete and the yeast bed is starting to fill with dead yeast cells which can add unwanted flavors to your brew. The T'ej may continue to ferment in the secondary vessel for several more weeks.

9) Once the T'ej has completely finished fermentation it can be bottled. You can bottle the liquid as is for a "still" beverage or near still. Depending on your honey, it may not be possible to get an entirely "still" beverage. You can also prime the brew for a carbonated drink. I prefer to use one teaspoon of honey per bottle to prime honey-based brews. However, any other common priming sugar would work.

10) Place the filled bottles in a cool dark place and allow aging for at least one month prior to drinking.

Taking the next step: A "Real" Kratom T'ej

To truly make a T'ej, it is necessary to let nature take its course and allow the beverage to "spontaneously" ferment. If you are feeling a little more adventurous, and you don't mind unpredictable results, take the next step and make a spontaneously fermented Kratom T'ej.

I have found kratom can be used in the same way that gesho is employed in the traditional production of T'ej. Use the same recipe provided earlier, but do not add the kratom to the boil and do not add the ale yeast. Instead, once cool, gently pour into a fermentation vessel, and then add the kratom, stir, and seal

the fermenter with an airlock. Fermentation will be much slower than if using ale yeast. After several days, you should begin to notice some bubbles forming around the leaf material on top of the liquid. This is the beginning of fermentation. After two weeks, strain out the leaf material and replace the liquid in a clean fermenter. At this point fermentation should become more pronounced. Once fermentation has halted, the T'ej can be siphoned off and bottled. Kratom sourced from different locations will yield different strains of yeasts and therefore, may produce different flavors.

The Current State Of Medical Cannabis

By Steve Rudd

Cannabis is probably the most famous and controversial plant medicine in use today. Having been a Schedule I drug for over 40 years, cannabis is finally making its way back into the medical field as a valid medicine. Cannabis and cannabinoids have been studied in the laboratory and clinics for relief of pain, nausea, vomiting, anxiety, and loss of appetite for chemotherapy and AIDS patients. Cannabis has recently been shown to fight several types of cancer, including skin, lung, brain, and prostate cancer [1]. There are several pharmaceutical companies currently developing medical cannabis products, including breath sprays, suntan lotions, as well as full spectrum extracts in pill form. Despite this information, only 17 states and Washington D.C. allow the medicinal use of cannabis and is still federally illegal in the United States.

The ways in which cannabis is administered and used has changed a lot in the last few years too. On the west coast of the United States, butane honey oil (BHO) extracts, known as 'dabs', are becoming very popular with medical patients who require higher concentrations because of severe pain or tolerance that has built up to the cannabinoids. Some 'dabs' boast up to 70% tetrahydrocannabinol (THC), the main active chemical in cannabis.

There is also a new trend with juicing raw cannibis. When juicing cannabis, the leaves are usually used. The leaves have very little THC, but contain high concentrations of a lesser known and beneficial chemical compound called cannabidiol (CBD) which has shown to help relieve inflammation, convulsions, nausea, and inhibit cancer cell growth.

Cannabis has been used for thousands of years and may still hold the answers to a lot of medical questions. We will just have to wait and see what the future of medical cannabis holds.

1 Marijuana May Fight Lung Tumors
http://www.webmd.com/lung-cancer/news/20070417/marijuana-may-fight-lung-tumors

Acacia confusa of Taiwan

An important low mountain tree suitable for sustainable ayahuasca use in Asia

Words and Photos by Kada

Taiwan, previously named Formosa, is a small, yet bustling, island nation 394km long, laying smack dab on top of the Tropic of Capricorn. The south of Taiwan is tropical, at low elevations, with distinct dry/wet seasons. However, the north of Taiwan is sub-tropical and may rain throughout the year. From the tropical coastlines, with coral sand beaches and coral rock forests, to the soaring mountains reaching near 4000m bringing snow in winter, this island has an incredible diversity in both ecosystems and the flora that dominates them. Of the 4,200 plus plant species in Taiwan, 1,041 are endemic (Hsieh, C. F., 2002). Despite Taiwan's high plant diversity and incredibly high plant endemism (26%), the island only has two native Acacia species; however, other species have become naturalized: Acacia confusa and A. caesia (Flora of Taiwan, 1993). This article focuses on Acacia confusa in Taiwan and spiritual and commercial prospects as both an ayahuasca ingredient and as a rich source of tannins.

In Taiwan, Acacia confuse mostly grows today on mountain slopes from 5 to 2,000 meters. Prior to massive human development, Acacia confuse probably spread through the western plain to the coast. However, reproduction continues in restricted localities that have not been paved such as southern Pingtung County. With incredibly strong roots penetrating deep into the shale-like rock, this tree is able to withstand flash floods eroding the soil and winds up to 280KMh. Acacia confusa trees in southern Taiwan can be found up to 2400m, where temperatures may briefly reach 2-3˚ Celsius at night; however, they tend to be more common below 1,500m. Northern localities tend not to grow so high due to colder air temperatures. The distribution range in Taiwan is mostly dictated by both human development and cold temperatures in high mountains. Acacia confusa can be found along the coast, slightly in from the high tide mark; up to the temperate forests of the higher mountains, but well below the freeze line. Acacia confusa is a very adaptable tree suited to living in extreme conditions on a very extreme island.

Many times trees will blow over and continue to grow. Here we see trees growing at a 90 degree angle to mountain and hanging over a road. Trees can grow many years in this fashion. Due to dangers for roadways, trees like this are often cut, which provides easy access to bark.

A typical Acacia dominant forest in the mountains of Taiwan consists of about 20-70% Acacia confusa of all tree species (personal observation). In southern Taiwan, where the winter months can be totally without rain, an Acacia forest appears quite dry and brown in the underbrush. Indeed, when hiking though the low to mid-elevation mountains in winter, there is a lovely crackling sound as you glide through the forest floor. Silence is lost as long as you are in motion under an Acacia confusa canopy.

The forest floor is generally either near solid rock, broken rock/gravel caused by landslides, earthquakes or heavy rain, or a very hard clay-based soil of anywhere from a few centimeters to a few

meters deep. As a young plant, Acacia confusa generally cannot survive the barren rock type landscapes one may see after heavy rains or earthquakes. Larger trees, on the other hand, are quite well suited to remain on bare mountainsides after having the soil eroded because of a large root systems going deep into the rock. Much of southern Taiwan experiences approximately 1/3 of the year without rain, another 1/3 with very heavy rain, and the other 1/3 with moderate rain. This tree is able to withstand and grow seemingly quite comfortably in a range of places and climates. However, truly dry land is not suitable nor is the cold. One thing that does seem consistent in their habitat in Taiwan is the areas they grow tend not to flood and accumulate water for prolonged periods; however, at the same time the soil underground rarely dries out fully despite the dry appearance on the surface.

Acacia confusa growing on rocky ground on the side of a mountain. Very few other species of tree are able to do this with good success in Taiwan.

Acacia confusa used as a cover tree for coffee plantations. Acacia confusa is used in the same way for birds nest fern farms as well.

The stems of Acacia confusa are like the roots; incredibly strong. The wood is quite hard and very resilient to high winds. Living in the mountains on an island in direct typhoon paths each summer, these trees have adapted to severe conditions that ultimately made them a very strong tree that now dominates much of the nation. Despite how tough this tree seems, many do not reach truly old ages. Because of where they tend to grow in the mountains, trees are often killed at some point due to landslides and/or extreme winds uprooting and exposing the roots to the sun; an often fatal event. Earthquakes will also shake the mountains enough to cause the rocks to become loose. In addition, sometimes the agitation will cause a top heavy tree to fall to the valley below. Eventually the tree is washed down river for anxious Taiwanese woodworkers to collect for future projects.

Acacia confusa's Role in Agriculture

Today, many small traditional aboriginal villages remain scattered throughout Taiwan's central mountain range. Many of these people are hunters and/or farmers. Taiwanese people will use Acacia confusa as a shade tree, sometimes exclusively over other tree species, for its ideal

light penetration through the canopy. Under these Acacia canopies, other tree species and all the underbrush will be cleared and the land prepared for the desired crop. In most cases, such cleared land will be planted with either coffee (Coffea arabica) or birds nest fern (Asplenium nidus). The new growth of Asplenium nidus is a common vegetable in Taiwan and has gained so much popularity. Asplenium nidus can be found packaged in major supermarkets around the island. This type of agriculture will sustain these people through the generations without much risk of loss of land quality. In contrast, compare this to the lowlands of Taiwan which have been polluted with over a century of manufacture and unsustainable agriculture practices. One perfect example of poor land management in the mountains of Taiwan included the farming of the betel nut palm (Areca catechu). Entire slopes are cleared and weak rooted palms are planted causing an incredibly high occurrence of landslide and general soil erosion. Not only do Acacia trees provide ideal light conditions for the coffee and fern crops, but they also help keep the mountainsides stable in times of intense weather.

Acacia confusa Tannins

Acacia confusa, like many other Acacia species, is rich in tannins in its bark and wood. The wood and bark can be boiled in water to extract the deep brownish-red tannins. At this time, we have found no information about this species being used as a commercial tannin source, but seem to be a worthy candidate. Judging by our own clothing being permanently dyed an almost sienna brown without any kind of treatment, we are confident this would make a good candidate for tanning hides and provide other industries a steady and potentially sustainable source of tannins.

Acacia confusa Bark and Ayahuasca

Recently, as humans have experimented more, the use of Acacia confusa bark has been used as a Dimethyltryptamine (DMT) source for Ayahuasca. Ayahuasca is a hallucinogenic drink originating from South America. Traditionally, the drink contains the leaves of Psychotria species (usually P. viridis) and the stems of Banisteriopsis caapi. Psychotria species are often the plant that contains the hallucinogenic compound DMT. It is DMT that Acacia confusa, as well as numerous other plant species, provides. Typically you need at least two ingredients for an Ayahuasca brew: a DMT source and an MAOi source. An MAOi is a compound that will inhibit your body's ability to metabolize and destroy the DMT when taken orally. Without an MAOi, DMT will be almost inactive orally due to our body's ability to dispose of it quickly.

The most common sources for MAOi, in Ayahuasca, are Banisteriopsis caapi; a large liana from South America and the seeds of Peganum harmala from Asia. There are some considerations to take into account on health and diet when consuming an MAOi and psychedelics. Be sure to consult a source of information on the safety and medical pros and cons of said chemicals. We will not discuss the risks of Ayahuasca and individual compounds here as we feel this is more appropriately addressed by a future article more specific to ayahuasca chemistry.

As well as with ayahuasca, DMT can be extracted in its pure or near pure form and administered by vaporizing. Acacia confusa trunk and root bark contain fairly equal amounts of DMT ranging from 0.3-1.6% DMT dry weight (personal observation). Importantly, do note most extractions done with Acacia bark are not able to remove monomethyltryptamine (NMT) easily. This is said to be close to equal concentrations as DMT making the probable DMT concentration more likely in the 0.15-0.8% range (dry weight). Part two of this article will discuss more about the chemistry of Acacia confusa and also include the conclusions of some studies that are currently ongoing.

The Ethical Harvesting of Acacia confusa Trees

Ethical harvesting of bark from wild trees, not only Acacia confusa, is essential for not only sustainability but simply out of respect to the environment. Acacia confusa trees, in cultivation (in ground), may take over 10-15 years before they can start to be harvested of good quality bark. For this reason, most people tend to harvest from wild trees, as this is common with other species that are used for their bark's DMT content. With some species such as Mimosa hostilis, only the bark from the roots is used in ayahuasca type concoctions. With many Acacia species, the root bark or more commonly the trunk bark is used. This has led to some problems with people over harvesting less abundant Acacia species in other countries.

Acacia confusa root bark and trunk bark (from mature stems) are virtually the same in DMT concentrations (pers. comm., personal observation). Trunk bark is infinitely better on the ecosystem and we encourage the readers to avoid using root bark unless they know for sure the root bark was sustainably harvested. What does sustainably harvested actually mean? Well, to us it means the harvesting of bark without causing detriment to the tree or ecosystem. How is this accomplished? By picking and choosing trees carefully that have recently fallen, or going somewhere where someone is cutting them down anyway. In this way you are not harming healthy trees or habitats specifically to harvest the bark. In a place like Taiwan, with such steep mountains and extreme weather, there are many trees to choose from without ever thinking of killing a healthy standing tree. When walking through the dry mountainous forests that are dominated by Acacia confusa, one can easily find fallen trees. Due to Taiwan's typhoon season every summer, there are not only high winds, but very heavy rainfall which ensures there will be a fresh supply of fallen trees every year, without fail. As a result of hiking through the mountains, I have estimated that for every 70 to 100 trees, there is one recently fallen tree ready to hardy. This estimate is in winter; however, there are a lot more just after the summer typhoon season.

Bark that is on dead trees will be more brown, drier and brittle. This bark is not suitable to use.

Older trees that have been dead for a while are not suitable for use. This is due to dead cells that are riddled with fungi mycelium and perhaps also insects. Once the tree truly dies, the tree will first shed leaves then the bark dehydrates and becomes very hard. It is easy to tell because the bark will be a darker brown instead of a red-pink colour under the surface. Furthermore, the bark will break rather than bend, making it very inconvenient to harvest. Fresh Acacia confusa bark from a living tree is fairly flexible.

Dead trees, even some live trees, are magnets for fungi. Once the fungi takes hold, the tree is often invaded by beetle larvae, termites and ants soon after. Ganoderma multipileum (Wang, D. M. et al, 2009) is particularly fond of this species and good reishi mushrooms can sometimes be found while out on a hike through Acacia trees. After years of consuming Ganoderma species from Acacia confusa, it seems as if there is no DMT transferred into the mushroom from the tree; though, we are not aware of any such formal investigation.

Acacia trees in forest that have recently fallen due to high winds. With 7 large trunks in this one spot, over 50kg of dry high grade bark was harvested.

When fallen trees are found, most likely they have blown over and the roots have been pulled up at least at one side. Acacia confusa rarely snap in high winds. The trees have evolved to withstand incredibly high wind speeds and the trunks are solid as a result. With trees that have blown over and presented exposed roots, we now have access to root bark as well as trunk bark from the same tree. In this manner, one can still sustainably harvest root bark from the tree without disturbing the ground further. Standing trees with exposed roots growing down the mountainside should not be harvested as they will likely be killed in the process and in time will lead to further soil erosion.

Harvesting Acacia confusa Root Bark

We strongly discourage harvesting root bark unless the trees are already cultivated, fallen, or the roots have been exposed. One should not harvest the roots from healthy trees that have roots exposed. Due to the commonly steep mountains sides in Taiwan and Acacia's ability to cover said mountains, there are usually some good sized roots exposed at the surface before reaching down into the rock for an anchor. These trees are essential for protecting the mountains against erosion. Stripping them of bark will not only expose them to the sun which may dry out the root, but also invite fungi spores to germinate and start eating the trees roots. A cleared mountain side in Taiwan can be bare rock after one rainy season. This is due from the fact heavy rain washes away the soil and smaller weaker plants; thus, having trees with good roots is of huge importance to the ecosystem.

Once a suitable tree has been selected, and has made sure the impact to the surrounding environment is minimal, one can start cleaning away the rock and dirt from the roots. More importantly, care should be taken not to dig out large areas of dirt, as this will also cause landslides in future rains. We find that roots of about 10cm in diameter or larger are best to use. Smaller roots tend to have thin pale bark and may not yield

Trees like these with exposed roots may seem ideal, but harvesting such plants will kill the roots and destroy the single biggest thing holding up the dirt that has taken thousands of years to form.

as strong a product in the end. However, it is all good, so if it is available, use it. More info will be published in part two of this article on DMT concentrations in different bark.

The root bark will be covered in dirt. Wash the root bark onsite if there is a water source nearby to make the process easier. Avoid washing bark once stripped. You will no doubt be washing away some of the compounds you are there to collect; albeit small amounts. Once washed, use a machete or similar strong blade to cut the circumference of the bark and make one more gash lengthwise. Under the corner of the cut, push in the tip of the blade between the bark and the wood and lift up; taking care not to snap the blade. Once the bark is pried up enough, the bark can be pulled up by hand. Good bark will be a pink-red color, ranging from a light-medium pink to a darker reddish-pink. If the bark is getting white-yellow, avoid harvesting from such a young section of root.

Harvesting Stem Bark

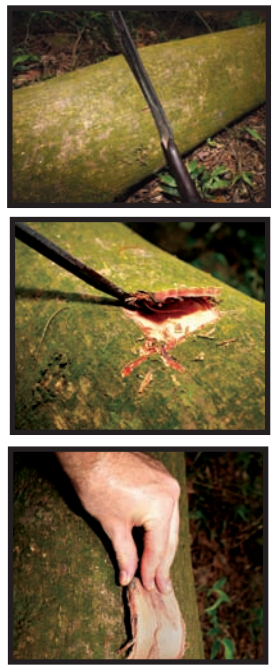
Stem bark is preferred over root bark for two reasons. Stem bark is far easier to harvest from the tree and prepare at home. First, about half or more of your time is freed up simply by not digging and washing roots prior to harvest. Second, you are also not actively encouraging soil erosion by digging in the ground, disrupting and killing important root and mycelium systems that are helping to hold the mountainside together. For these two reasons and because the end product is of like quality, we see little reason to perpetuate the habit of root bark harvesting that began with Mimosa hostilis harvesting. Unlike Mimosa hostilis, Acacia confusa has large amounts DMT in the stem bark. Thus, the stem bark can be harvested following a different set of guidelines than Mimosa hostilis which only has high concentrations of DMT in the root bark.

Trunks that are 30cm or more in diameter are the best to harvest from. This is because they are large in physical size, although still variable, and always contain high concentrations of DMT. Smaller stems can be used just the same. Do not waste the smaller stems because they still contain a varying amount of DMT that is certainly worth taking home. In ayahuasca brews, smaller branch bark (5-15cm diameter) seemed noticeably weaker than good thick old bark taken from larger trunks. At this time, it seems to be that the thicker, more resinous dark bark is stronger. The chemistry of Acacia confusa will be reported on in a future article in greater detail comparing such materials against each other.

Trees such as this are ideal for harvesting as they have fallen naturally, the bark is fresh and it is very easy to access.

This is how bark looks like on a healthy tree that has not yet died.

As with harvesting the root bark, two cuts are made on the trunk in a cross figure. With sustainable harvesting practices, the trees will have fallen already and will often be more or less horizontal. This makes a day in the woods much more pleasant; unless the trunks are hanging over a cliff. With a cross shaped cut, slide the blade under a corner of bark and pry it up about 5-10cm. We find it more convenient to cut another cut crossing the grain lower down about 1 meter. This makes the cutting easier down the trunk and when the bark is pulled it will not tear into many small strands but instead rip off into solid strips. This is especially important if you are transporting the trunks in a backpack out of the mountains as it will pack tighter into your pack. As a general guideline, one can fit about 70KG of bark into a 90 litre backpack. However, at that weight, more is not usually considered.



The process of cutting the bark and peeling it back to remove from the tree.

Effects of Harvesting Acacia confusa on the Environment

Harvesting living standing Acacia confusa trees has some very serious and sometimes irreversible effects on the environment. The biggest problem with harvesting is the obvious risk to the tree. Harvesting all the way around a trunk will most certainly kill the entire tree. The wood of the tree is generally composed of many dead cells which give the tree its structure and strength (aka wood). Furthermore, all the transport cells that take nutrients and water to and from the roots and the shoots are between the outer bark and the wood beneath. If the bark must be harvested from standing trees, we suggest taking no more than 10% of the circumference. Although this will still harm the tree and open it up to infection and pests, taking less is far better method than stripping the entire tree. One does not need a lot of bark; a single 10cm by 200cm piece is enough bark for approximately 20 people. We strongly urge people, however, to put in more effort and avoid being greedy and/or lazy in order to quickly reap the rewards of the environments' destruction.

Note different growth habit of Acacia confusa growing near the coast in southern Taiwan. Also note the invading Leucaena leucocephalaat the upper right which is brown not due to dead plants, but because of how many seed pods they can produce.

When whole trunks are harvested, the tree and roots die within 1-3 years. The trees become brittle and riddled with fungi and bugs begin feeding on them. Further, they lose the ability to hold up the mountainside and soil erosion may be the result. Soil erosion is a global problem, and more often than not the end result is a barren land that is incredibly difficult and

slow to regenerate to its former glory.

For now Acacia confusa is not an endangered tree, and is in fact quite a common tree throughout lower elevations in Taiwan. There are growing concerns in places such as extreme southern Taiwan where invasive species. For example, Leucaena leucocephala is out competing Acacia and other native species (Chieh-Chin, Chin 2007). Although at present, there seems little risk of endangerment of Acacia confusa, we should be careful where harvesting as to not disturb the ground so much that only invasive species may thrive.

Traditional use in Taiwan

Traditional use of Acacia confusa seems to have more to do with simple building material and firewood in Taiwan. Although Acacia confusa is used a little bit in Chinese Medicine, this medicine style is brought over from mainland China and is perhaps technically not traditional for Taiwan prior to Chinese occupation.

Many aboriginal tribes in Taiwan are hunter/farmer type societies. Animals make up a huge part of the diet. Furthermore, different tribes tend to stay in one area for long periods building homes and making hunting trips into the mountains. Where we often hike in Pingtung County, the aboriginal people make houses out of the shale like rock and stack the rock much like bricks. Roofs are made of wood poles underneath, often bamboo, with larger slates of rock on top acting as shingles for the rain.

It is rumoured that some older aboriginal people know of the power of the Acacia tree. However, there is little proof of such and members of various villages we have talked with either were not aware of the use or were not willing to share their knowledge on the species in relation to its psychoactivity.

Importantly, do note that this is simply an observation and more of a curiosity than a point; many of the aboriginal towns in the mountains do cultivate entheogens. Of particular commonality is a Brugmansia hybrid (a newer introduction to Taiwan and a hybrid we have not yet seen in use by aboriginals but have seen used in Chinese Medicine in Taiwan), Nicotiana tobacum and alcohol production. This is only mentioned because it seems possible some aboriginal people are aware of psychoactive plants. Therefore, it seems at least plausible that some of the native people in Taiwan are aware of the secret Acacia confusa holds. At one time, a man stopped us from picking the flowers of a large stand of Brugmansia trees growing in a riverbed near where we camped. He noticed a large bag filled with flowers and was warning us. The man could not speak English of course or Mandarin, but was clearly trying to warn us not to eat them. Pointing to his mouth in

This Acacia confusa tree is very old, likely over 100 years, and is about 100cm in diameter. Large trees like this are often host to many small animals and plants such as these ferns. Orchids, vines and epiphytes often use large trees like these for support.

a typical eating motion, the man pointed to his temple and twisted his fingers. In Taiwan this means crazy. It is an interesting topic, not given much of a look unfortunately. However, the flowers could have been simply ornamentals and they were unaware. Nevertheless, we wanted to have this note here in print to perhaps spark an interest for further study.

Acacias' Role as a Home Tree

Acacia confusa is home to a number of organisms such as bark scorpions (Liocheles australasiae), numerous spiders and insects, and smaller plant species (personal observation). Birds also nest in Acacia trees, which brings in predators such as snakes and civets. Macaques will also play around in the trees, although they have no food source from an Acacia tree so they tend not to stick around long in a predominantly Acacia forest. Geckos, skinks, japaluras, birds, beetles, termites, ants, butterflies, fungi and mammals all use this tree in one way or another. Most permanent residents to an Acacia confusa tree are generally small in size as the tree provides food for very few organisms.

Larger trees that are thick and have many nooks and crannies will serve home to far more animals. However, when older, the tree will serve as a host to fungi and plant life as well. Large trees sometimes have ferns growing in the crotch of a branch emerging from the trunk. The larger trees also tend to have thick bark at the joints, which often pops up off the inner wood and serves home to a plethora of organisms. Many fungi species live off the dead wood of this tree, but even live trees can be affected by Ganoderma multipileum, a reishi mushroom species often confused with G. lucidum from Europe (Wang, D. M. et al, 2009).

Although Acacia confusa is used by many organisms for a home tree, few organisms feed off it. Fungi are probably the biggest nuisance to an Acacia confusa tree in Taiwan. The phyllodes are sometimes nibbled by the odd insect. About the only part of the tree that regularly fed upon by an animal is the seed. Insect larvae of various species, especially beetles, like to chew through the seed pod and eat the seeds inside where they eventually pupate to adult form. This behaviour is not just limited to Acacia confusa, but in fact the fruits of many species within the Fabaceae family are quite attractive to bugs of this sort.

Conclusion

Acacia confusa has proven worthy as an ayahuasca source plant as it is quite common, contains high concentrations of DMT, is able to be sustainably harvested with little impact to the ecosystem and is easy to work with. Taiwan alone has millions of trees and by my own estimates over 50,000 trees fall over each year that can be easily accessed by people. Acacia confusa is a very promising tree species not only for commercial prospects but for medicinal properties and valuable role in the central mountains of an island nation once known as Formosa.

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