MI-11 Plant and ritual medicines of the mind: ayahuasca, psilocybin, iboga, kava, cannabis

HEALING after the FALL, research library, MI-11

Researched 10 October 2026 by Claude Opus agent for THRIVING after the FALL, Book Four. Library document, unverified.

This report weighs the plant medicines of the mind with the modern trials, the indigenous frames and the risks, for a village with no screening tools and no emergency backup. It builds on MI-06 (iboga, ibogaine and the peyote road to sobriety), TR-09 (the Amazonian and Mesoamerican healers and the ayahuasca deaths), PH-10 (mushroom identification), ME-14 (poisoning care), MI-04 (kava and the other treatments for depression and anxiety) and SY-04 (restricted knowledge), and does not repeat them (THRIVING library, MI-06, TR-09, PH-10, ME-14, MI-04, SY-04).

The owner has not decided how the book frames psychedelics. Every village rule below that depends on that decision, including whether any of these plants is grown, held or given at all, is marked [OWNER]. Under SY-04 category 5 the book does not teach the ceremonial use of psychoactive sacred plants. Cultivation, preparation and dosing appear here only as history, evidence, dose range, variability and feasibility, never as a procedure.

The short answer: psilocybin has the best trial evidence of anything in this report, a real but probably overstated effect in depression that fades within weeks to months for many patients. Ayahuasca has one small positive trial and church cohorts that look well. Kava's larger trial failed. Cannabis does not treat anxiety or PTSD on present evidence and raises psychosis risk. Iboga and *Datura* kill. Every one of the benefits was measured with screening, a fixed dose and trained sitters, which is exactly what the village lacks, while the mushroom that grows wild adds a dose that varies up to tenfold and deadly lookalikes.

Findings by section

1. The traditions on their own terms

The Mazatec velada. Among the Mazatec of the Sierra Mazateca in northern Oaxaca, Mexico, the *sabios* and *sabias* (wise ones) ate the mushrooms they call *los niños santos*, the holy children, at a night vigil, the *velada*, with the sick person. María Sabina of Huautla de Jiménez, whose great-grandfather, grandfather and great-aunt were also *sabios*, understood that the mushrooms gave wisdom and cured illness and that the words of "the little things" must be obeyed, because they sprout by themselves and no one sows them. During the vigil the cause of the client's illness or trouble would appear, and the spiritual beings speaking through the mushrooms named the remedy, the herbs to find or the pilgrimage to make. She kept a rule of sexual abstinence before eating them (Krippner and Winkelman 1983, from Estrada 1981). The banker R. Gordon Wasson attended a velada in 1955 and described it in *Life* in May 1957 (Wikipedia, Velada). The young foreigners who followed came to explore the spirit, not to be cured. Townspeople said she had betrayed Mazatec tradition, her house and store were burned, and she later said the mushrooms had lost their purity and much of their power because the visitors ate them without preparation and without a wise one.

The Mexican army expelled the foreigners from Huautla in 1967 (Krippner and Winkelman 1983). Her chants were recorded and published by outsiders. Under SY-04 the book does not reproduce them (THRIVING library, SY-04).

The Amazonian plant teacher. For the *vegetalistas* of the Peruvian Amazon, ayahuasca (*Banisteriopsis caapi*, stem, cooked with *Psychotria viridis*, leaf) is a plant teacher. It does not itself cure. It lets the healer and the patient see the cause, usually a person who sent harm (*daño*). The healer learns through a long *dieta* of isolation and food without salt, sugar or fat, and the healing songs (*icaros*) are restricted (THRIVING library, TR-09). In Iquitos, Marlene Dobkin de Rios found that healers chose patients they thought they could reach and did not take psychotic patients (Dobkin de Rios 1970, via THRIVING library, TR-09). That is a screening rule, applied by someone who knew the patient's family and history. Bernd Brabec de Mori showed that Shipibo ayahuasca shamanism is partly recent, which TR-09 discusses.

The Brazilian churches. The União do Vegetal (UDV) and Santo Daime drink ayahuasca as a sacrament, members typically at least twice a month (Bouso et al. 2012). The UDV kept its own records of psychiatric events among members (dos Santos, Bouso and Hallak 2017). These are the cohorts in section 4.

The Native American Church. Peyote (*Lophophora williamsii*, the dried crown of a small spineless cactus of the Chihuahuan Desert) is the Church's sacrament, taken at an all-night meeting, and the Peyote Road forbids alcohol. The ceremony belongs to the Church and is not described here (THRIVING library, MI-06, SY-04). Wild peyote in south Texas, abundant in the 1970s, has largely disappeared, and in 2017 the National Council of Native American Churches bought 605 acres near Hebbronville for a preserve. Many Church members oppose cultivation outside its habitat as diluting its sacred nature (AP 2024, via KVIA).

Bwiti. The root bark of *Tabernanthe iboga* is the sacrament of Bwiti initiation in Gabon and neighbouring countries. The initiation is restricted (THRIVING library, MI-06).

Kava. *Piper methysticum* root, pounded with water and shared from one bowl, is the social and ceremonial drink of Fiji, Tonga, Samoa, Vanuatu and much of Oceania, used to welcome guests and settle disputes. Ceremonial forms held under restriction are not described (THRIVING library, TR-15). Kava is a social medicine before it is a psychiatric one.

Cannabis in India. *Cannabis sativa* as *bhang* has a long religious sanction among Hindus. The Indian Hemp Drugs Commission, which began on 3 July 1893 under W. Mackworth Young and heard almost 1,200 witnesses, concluded that moderate use caused "no appreciable physical injury" and no mental injury, while excessive use "indicates and intensifies mental instability" (Wikipedia, Indian Hemp Drugs Commission, quoting the report). Its asylum visits weakened the belief that ganja caused insanity.

What the frames provided. Read side by side, the traditions supply six things: a healer who chooses whom to receive and refuses some (the psychotic, in Iquitos), preparation (abstinence, diet), a known source and a sitter who has drunk the same brew many times, a night held in company, a meaning for what is seen, and a community that receives the person afterwards. These map closely onto what the trial protocols rebuilt as "set and setting" (Johnson, Richards and Griffiths 2008). Neither the traditions nor the trials supply a test that finds the person who will break down. The traditions also fail: Sabina's own story shows the frame destroyed within a decade by outsiders, and TR-09 documents tourist deaths under people calling themselves shamans.

2. Psilocybin: the trials

Against escitalopram. Robin Carhart-Harris and colleagues at Imperial College randomised 59 people with long-standing moderate to severe depression to two doses of 25 mg psilocybin three weeks apart plus daily placebo, or two doses of 1 mg plus six weeks of escitalopram, all with psychological support. On the primary outcome, the QIDS-SR-16 at week 6, scores fell 8.0 points with psilocybin and 6.0 with escitalopram, a difference of 2.0 (95 per cent confidence interval minus 5.0 to 0.9, p = 0.17), not significant. Response was 70 against 48 per cent and remission

57 against 28 per cent, but these secondary outcomes were not corrected for multiple comparisons (Carhart-Harris et al. 2021). The honest reading is that psilocybin was at least as good as a standard antidepressant over six weeks in a selected group. It did not beat it.

Against a waiting list. Alan Davis and colleagues at Johns Hopkins gave 24 adults with major depression, off antidepressants and without psychotic disorder, serious suicide attempt or hospitalisation, two sessions (20 then 30 mg per 70 kg) with about 11 hours of supportive therapy. The GRID-HAMD fell from about 23 to 8.0 at week 1 and 8.5 at week 4, while the waiting group stayed near 23.5. The effect sizes were very large (Cohen's d 2.5 and 2.6), 71 per cent responded and 54 per cent were in remission at week 4. There were no serious adverse events, and headache occurred in a third of sessions (Davis et al. 2021, full text). The paper had to be corrected for errors in a response rate and in effect sizes (Davis and Griffiths 2021). At 12 months all 24 were followed, and response was 75 per cent and remission 58 per cent (Gukasyan et al. 2022). A waiting list is the weakest control, and patients who know they have taken a psychedelic expect to improve.

Treatment-resistant depression. Guy Goodwin and colleagues, funded by COMPASS Pathways, gave a single dose of 25 mg (79 patients), 10 mg (75) or 1 mg (79) with support. At week 3 the MADRS fell 12.0, 7.9 and 5.4 points. The 25 mg difference from 1 mg was 6.6 points (95 per cent confidence interval 2.9 to 10.2, $p < 0.001$), and 10 mg did not differ. The response was not sustained at 12 weeks for either dose. Adverse events occurred in 179 of 233 (77 per cent), and suicidal ideation or behaviour or self-injury occurred in all dose groups (Goodwin et al. 2022). The company's own release counted 27 such events in 17 patients, seven of them in the 25 mg group, and serious events in nine patients (four on 25 mg, four on 10 mg, one on 1 mg), most at least a week after dosing (COMPASS Pathways 2021, secondary). These were people with severe, resistant illness, and the 1 mg group had events too. The trial cannot show that psilocybin caused them. It does show that a single dose does not protect against them, and that the weeks after dosing need watching. The first phase 3 trial, COMP005, in 258 patients, reported a difference of 3.6 MADRS points at week 6 for 25 mg against placebo, and COMP006 a difference of 3.8 against 1 mg (COMPASS Pathways 2025, press release via search summaries). That is roughly half the phase 2 difference.

Cancer distress. Roland Griffiths and colleagues gave 51 people with life-threatening cancer a high dose (22 or 30 mg per 70 kg) and a very low dose in random order five weeks apart. The high dose produced large falls in depressed mood and anxiety and less death anxiety, and at six months about 80 per cent still showed clinically significant improvement (Griffiths et al. 2016). An NYU trial of similar design ran alongside it and is not read here.

What the meta-analysis does to the effect. Tien-Wei Hsu and colleagues pooled psychedelic and escitalopram trials and noticed that placebo groups improve less in psychedelic trials (3.9 points less on the Hamilton scale), because patients know they did not get the drug. Measured against the placebo of the psychedelic trials, high-dose psilocybin had a large effect (standardised mean difference 0.88). Measured against the placebo of the antidepressant trials, it fell to a small effect (0.31), still the only psychedelic to beat placebo on that basis (Hsu et al. 2024). Suresh Muthukumaraswamy argues that effect sizes in psychedelic trials are "likely inflated" by unblinding and that approval should wait for better designs (Muthukumaraswamy 2023).

Safety in trials and outside them. A review of 114 studies with 3,504 participants found serious adverse events in about 4 per cent of those with an existing psychiatric or neurological condition (worsening depression, suicidal behaviour, psychosis, convulsions) and none reported among healthy volunteers (Hinkle et al. 2024, secondary summaries). Outside trials, in a nationally representative US sample of 613 people who had ever used a classic psychedelic, 59.1 per cent had never had a difficult experience, 8.9 per cent reported functional impairment lasting more than a day, and 2.6 per cent sought medical or psychological help afterwards. Lithium and other mood stabilisers, no preparation, no support, too large a dose and a recent major life event all raised the risk (Simonsson et al. 2023). Among 62 online reports of lithium taken with a classic psychedelic, 47 per cent described seizures and 39 per cent medical attention, against none of 34 lamotrigine reports (Nayak et al. 2021). The Dutch government's assessment found low dependence potential, moderate acute toxicity, low chronic toxicity, and concern about panic and flashbacks and the combination with alcohol (van Amsterdam, Opperhuizen and van den Brink 2011). Johnson and colleagues

name dangerous behaviour in unprepared, unsupervised users and worsening of illness in those with or predisposed to psychosis as the main harms (Johnson et al. 2018).

SSRIs and psilocybin. In 23 healthy volunteers, two weeks of escitalopram before 25 mg psilocybin did not change its positive mood effects but reduced anxiety, bad drug effects and cardiovascular effects. Psilocin's half-life was 1.8 hours (Becker et al. 2022). An online survey found weaker than expected effects in 48 per cent of reports with an SSRI, possibly for months after stopping (Gukasyan et al. 2022b, preprint). Unlike ayahuasca, the SSRI combination with psilocybin is not known to be dangerous. It blunts.

Who the trials excluded. The trials read here excluded people with a personal or family history of psychosis or bipolar illness (Palhano-Fontes et al. 2019, Johnson, Richards and Griffiths 2008), current antidepressants (Davis et al. 2021), serious suicide attempts and psychiatric admission (Davis et al. 2021), pregnancy and medical disease (Palhano-Fontes et al. 2019). Johnson's guidelines ask for at least two monitors, rapport built before the session and a safe room (Johnson, Richards and Griffiths 2008). The heart exclusions (uncontrolled blood pressure, recent heart disease) are standard but I did not read them in a protocol [VERIFY]. One Davis session raised diastolic pressure above 100 mm Hg (Davis et al. 2021).

3. Psilocybin from the ground: dose and identity

How much a mushroom holds. Michael Beug and Jeremy Bigwood analysed 20 Pacific Northwest species and found total psilocybin and psilocin from 0.1 per cent to nearly 2 per cent of dry weight, varying more than sevenfold between collections of the same species (Beug and Bigwood 1982). In cultivated *Psilocybe cubensis* psilocybin varied fourfold across flushes of one culture, and samples from outside sources varied more than tenfold (Bigwood and Beug 1982). Norwegian *P. semilanceata* ranged from 0.17 to 1.96 per cent (Christiansen, Rasmussen and Høiland 1981). Recent laboratory work on five *P. cubensis* strains found average totals of 0.88 to 1.36 per cent (Goff et al. 2024), and fourteen strains grown under one set of conditions varied more than 7.8-fold in total tryptamines, with 13 to 23 per cent variation between single fruit bodies of the same strain (Sharchaton et al. 2026). Japanese analysis put whole *P. cubensis* at 0.37 to 1.30 per cent psilocybin dry weight, and stems as low as 0.05 per cent (Tsujikawa 2003, via Wikipedia).

What 25 mg means in mushroom. My arithmetic, not a source: 25 mg of psilocybin is about 2.5 g of dried *P. cubensis* at 1 per cent, 1.9 g at 1.30 per cent and 6.8 g at 0.37 per cent. Across the full 0.1 to 2 per cent range of wild material it is 1.25 to 25 g [VERIFY, inference]. Consumer guides put 25 mg at 2.5 to 3 g dried, without method (search summary). Psilocin also acts, and dried weight hides moisture. The brief's "about 2 to 3 g, up to tenfold variation" stands. A village has no assay, so a person eating the same weight from two harvests may get two very different doses.

The lookalikes. The danger is not psilocybin. It is the small brown mushroom that is not a *Psilocybe*.

- *Galerina marginata* carries the same amatoxins as the death cap and grows "on well decayed wood", with a rusty-brown spore print and a ring that becomes rusty with spores. Hunters for *Psilocybe* have mistaken it, with "several poisonings and at least one death" (MykoWeb, Galerina marginata). Paul Stamets records poisonings in collectors who took it for *P. stuntzii*, which grows in wood chips and mulch (Stamets 1996, via Wikipedia, Psilocybe stuntzii). The course is PH-10's: 6 to 24 hours of quiet, then cholera-like vomiting, a false recovery and liver failure (THRIVING library, PH-10).
- *Pholiotina rugosa* (*Conocybe filaris*), a small ringed brown mushroom on the ground among woody debris, cap 1 to 2 cm (Kuo, MushroomExpert), is reported to carry amatoxins [VERIFY, secondary sources only].
- *Cortinarius rubellus*, taken for *P. semilanceata*, caused end-stage renal failure needing transplant (Franz et al. 1996, title and secondary summary). The webcap course of 3 to 20 days is in PH-10.
- *Inocybe geophylla*, a whitish silky cap with a dull brown print, carries muscarine (Wikipedia, Psilocybe semilanceata).

How *Galerina* is excluded. *Psilocybe* spore prints are dark purple-brown to purple-black: *P. cubensis* purple, with a white membranous ring stained dark by spores (Wikipedia, Psilocybe cubensis), *P. semilanceata* deep reddish purple-brown, with no lasting ring (Wikipedia, Psilocybe semilanceata). *Galerina* and *Pholiotina* print rusty brown. *P. cubensis* grows on cattle dung or rich pasture in the tropics and subtropics, *P. semilanceata* in wet grassland and dung-enriched pasture but not on the dung, and neither on wood. All parts of *Psilocybe* stain blue when bruised, which *Galerina* usually does not, though a rare *Galerina* is said to blue and blackening can be mistaken for bluing (search summary, unverified). Three rules follow, all from PH-10's method: one species per basket, a spore print from every cap batch, and discard the whole collection on any rusty-brown print or any specimen from wood (THRIVING library, PH-10). Blue staining is supporting evidence, never the deciding test. A temperate village would meet *P. semilanceata* in its own pastures in autumn, and *P. cubensis* only where it is warm or where someone cultivates it. Indoor cultivation of *P. cubensis* is widespread and removes the lookalike problem, at the cost of creating a supply [OWNER].

4. Ayahuasca

The trial. Fernanda Palhano-Fontes and colleagues in Natal, Brazil, randomised 29 people with treatment-resistant depression to one dose of ayahuasca or a placebo brew. The MADRS was lower with ayahuasca at days 1, 2 and 7, with between-group effect sizes of 0.84, 0.84 and 1.49, and response at day 7 was 64 against 27 per cent ($p = 0.04$), remission 36 against 7 per cent ($p = 0.054$). The brew was dosed at 1 ml per kg to give 0.36 mg of DMT per kg. Vomiting occurred in 57 per cent against none, and nausea in 71 against 26 per cent. There were no serious adverse events. Patients were excluded for personal or family history of schizophrenia, bipolar disorder or mania, pregnancy, medical disease and suicidal risk, and were washed out of antidepressants for about two weeks. Sessions lasted about eight hours in a quiet room, with two investigators next door, and four fragile patients stayed as inpatients for a week (Palhano-Fontes et al. 2019, full text). Five placebo patients thought they had taken ayahuasca, but vomiting in more than half the active arm makes the blind fragile. The trial is small, short and unreplicated.

The church cohorts. Charles Grob and colleagues compared 15 long-term UDV members with 15 matched controls in 1993 and found remission of earlier psychopathology after joining and no personality or cognitive deterioration (Grob et al. 1996). José Carlos Bouso and colleagues followed 127 regular users and 115 controls from other religions for a year and found lower psychopathology scores and better performance on several cognitive tests, with no sign of harm (Bouso et al. 2012). Both compare self-selected believers with others, and members who did badly may have left.

The brew varies. Dennis McKenna's analysis of eight Peruvian brews found alkaloid levels an order of magnitude higher than an earlier study (McKenna, Towers and Abbott 1984). Jace Callaway's analysis of 29 decoctions from four sources found "considerable variations" within and between sources, and DMT not detected in some (Callaway 2005). The trial batch held 0.36 mg DMT, 1.86 mg harmine, 0.24 mg harmaline and 1.20 mg tetrahydroharmine per ml (Palhano-Fontes et al. 2019).

The interactions. The harmala alkaloids of the vine inhibit monoamine oxidase, which is what makes DMT active by mouth (McKenna, Towers and Abbott 1984). Callaway and Grob warned in 1998 that combining ayahuasca with an SSRI may cause serotonin syndrome "with potentially grave outcome" (Callaway and Grob 1998). Malcolm and Lee extend the warning to tricyclics, SNRIs, trazodone and St John's wort, note that the effect of dietary tyramine in ayahuasca drinkers has never been studied, and infer a possible risk of hypertensive crisis from the pharmaceutical MAO inhibitors. Controlled studies show diastolic pressure rising by about 10 mm Hg (Malcolm and Lee 2017). After the Fall the danger is concrete: salvaged sertraline, fluoxetine and St John's wort will be in the same houses (THRIVING library, MI-04).

Psychosis and death. Rafael dos Santos and colleagues found three case series and two case reports of psychosis after ayahuasca. Many cases had a personal or family history of psychosis or mania or used other drugs, but some did not, and they recommend that anyone with such a history avoid hallucinogens. The UDV recorded 29 psychotic

disorders among members from 1994 to 2007. Gable estimated 13 to 24 possibly related psychotic incidents in about 25,000 servings, 0.05 to 0.1 per cent per serving, though neither the numerator nor the denominator is well founded (dos Santos, Bouso and Hallak 2017, citing Lima and Tófoli 2011 and Gable 2007). In the Global Ayahuasca Survey of 10,836 users, 2.3 per cent needed medical attention for physical effects and about 12 per cent of those with mental effects sought support, more often without supervision. ICEERS reviewed 58 deaths attributed to ayahuasca from 2010 to 2022, many from drowning, violence, added plants and combinations (Bouso et al. 2022, ICEERS 2023, via THRIVING library, TR-09). In August 2012 Kyle Nolan, 18, of Sebastopol, California, died at a retreat in Madre de Dios, Peru, and the man who called himself a shaman buried his body and told his mother he had walked away (CBS San Francisco 2012). No death has been observed in a clinical study (Malcolm and Lee 2017).

Feasibility. *B. caapi* and *P. viridis* are tropical plants of the Amazon basin. Outside the tropics the question will not arise unless a brew is stored or traded.

5. Iboga and peyote

Ibogaine killed at least 19 people outside west central Africa between 1990 and 2008, through the heart (QT prolongation and torsades de pointes) and through fits in people still withdrawing from alcohol or sedatives, and *T. iboga* grows only in central Africa (THRIVING library, MI-06). This report agrees with MI-06's grade X for village use. Peyote's safety record within the Church is good: 61 Navajo members who used it regularly showed no psychological or cognitive deficits against 79 minimal users, while 36 former alcoholics did (Halpern et al. 2005). Halpern warned that the finding may not generalise beyond religious use. The cactus takes years to mature, is vanishing in the wild, and belongs to the Church. No village outside it has reason to collect it (THRIVING library, MI-06).

6. Kava

The evidence is in MI-04 and TR-15 and is summarised here. A Cochrane review by Max Pittler and Edzard Ernst found 11 trials with 645 people, and in six the extract lowered the Hamilton anxiety score 5.0 points more than placebo (95 per cent confidence interval 1.1 to 8.8, n = 345) over 1 to 24 weeks (Pittler and Ernst 2003). Jerome Sarris's six-week trial of an aqueous extract (120 to 240 mg kavalactones a day) in 75 people with generalised anxiety found a moderate effect (d 0.62) and remission in 26 against 6 per cent (Sarris et al. 2013). His larger 16-week trial in 171 people found no benefit (1.37 points favouring placebo, p = 0.25), more memory complaints and tremor, and more abnormal liver tests (Sarris et al. 2020). The larger trial overturned the smaller one.

Liver injury followed European solvent extracts, and Germany banned kava in 2002 (THRIVING library, TR-15). WHO's 2007 review also listed five cases from water extracts, two from traditionally prepared kava. Rolf Teschke, Sarris and Isaac Schweitzer found that studies of traditional Pacific drinkers showed raised gamma-GT but no clinically relevant liver injury, and proposed mouldy raw material as the cause of the rare cases (Teschke, Sarris and Schweitzer 2012, one author funded by a kava maker). Heavy use is another matter. In an Arnhem Land Aboriginal community, very heavy users drinking about 440 g of kava powder a week were 20 per cent underweight, had a scaly rash and greatly raised gamma-GT, and the authors called for urgent action to reduce use (Mathews et al. 1988). A later study in east Arnhem Land linked kava to dermopathy, liver test abnormalities and low lymphocytes (Clough et al. 2003). Kava does not grow outside the tropical Pacific [VERIFY: climate limits not read].

7. Cannabis

Nicola Black and colleagues, with Wayne Hall and Louisa Degenhardt, reviewed 83 studies including 40 randomised trials (3,067 people). Pharmaceutical THC improved anxiety slightly in people with other medical conditions (standardised mean difference minus 0.25, very low quality evidence), worsened negative symptoms in one psychosis study, and did not significantly change any other primary outcome. It doubled adverse events (odds ratio 1.99) and nearly tripled withdrawals for adverse events (2.78). For post-traumatic stress disorder there was one randomised trial of

10 people. The authors found "scarce evidence" that cannabinoids improve depression, anxiety, ADHD, Tourette syndrome, PTSD or psychosis (Black et al. 2019).

Marta Di Forti and colleagues compared 901 first-episode psychosis patients with 1,237 population controls in 11 sites in Europe and Brazil. Daily use carried an adjusted odds ratio of 3.2 for psychotic disorder, and daily use of high-potency cannabis (THC at least 10 per cent [VERIFY, threshold cut off in the abstract read]) 4.8. If high-potency cannabis were unavailable, 12.2 per cent of first episodes across the sites could be prevented, 30.3 per cent in London and 50.3 per cent in Amsterdam (Di Forti et al. 2019). Among people who use cannabis, 22 per cent have a use disorder, and the risk of dependence reaches 33 per cent in young regular users (Leung et al. 2020). Cannabis grows almost anywhere and will be grown after the Fall whatever the book says, and home-grown potency is unknown. The Indian commission's distinction between moderate and excessive use matches the modern record better than either side of the modern debate.

8. MDMA, the comparator that is not a plant

MDMA is a synthetic drug that no village can make, but it is the best-studied psychedelic-type treatment for PTSD. Jennifer Mitchell and colleagues randomised 90 people with severe PTSD to MDMA or placebo, each with 3 preparatory and 9 integration sessions. The CAPS-5 fell 24.4 points against 13.9 (d 0.91) (Mitchell et al. 2021). The second trial, of 104 people, found falls of 23.7 against 14.8 (d 0.7), with no deaths or serious events (Mitchell et al. 2023). The US Food and Drug Administration's advisory committee voted 9 to 2 on 4 June 2024 that effectiveness had not been shown and 10 to 1 that benefits did not outweigh risks, citing functional unblinding, cardiovascular events and missing abuse data, and on 9 August 2024 the FDA refused approval and asked for another phase 3 trial (BioSpace 2024). The journal *Psychopharmacology* then retracted three papers from earlier phase 2 trials for "protocol violations amounting to unethical conduct" at one Canadian site (STAT 2024). Part of the "therapy" in MDMA-assisted therapy was the therapist, and that is where the harm entered. The village equivalent for trauma is MI-01's lay care (THRIVING library, MI-01).

9. *Datura*, the false visionary

Datura stramonium (jimsonweed, thorn apple) and *D. inoxia* (toloache) carry atropine, hyoscyamine and scopolamine in all parts, highest in the seed, at about 0.1 mg of atropine-equivalent per seed. The adult lethal dose is 10 mg or more of atropine and more than 2 to 4 mg of scopolamine. Symptoms start in 30 to 60 minutes and last 24 to 48 hours because the alkaloids slow the gut. On 18 June 1994 in El Paso, Texas, four adolescents drank a tea of jimsonweed root with alcohol and fell asleep in the desert, and two, aged 16 and 17, were found dead the next afternoon (CDC 1995). The plant is named for Jamestown, Virginia, where soldiers who ate it in 1676 became "Apish and foolish" for a time (VMNH, quoting Clayton 1687 [VERIFY, Beverley 1705 not read]). A review of 114 papers from 2001 to 2024 grouped poisonings into accidents (crop contamination, misidentification, children) and misuse (recreation, suicide, crime and magico-religious practice) (Aćimović 2025). *Brugmansia*, its tree relative, holds about 0.65 mg of scopolamine per flower, so about ten flowers can kill (THRIVING library, TR-09). The visions of *Datura* are delirium. The person does not know they are poisoned, cannot be talked down, overheats and may walk into water or traffic. There is no therapeutic version.

10. Claim, record and inference

Plant	What the tradition says	What the record shows	What science infers
Psilocybin mushroom	The holy children speak, show the cause of illness and name the cure (Mazatec)	5 randomised trials read, effects large in small open-minded samples, smaller in phase 3, often fading by 12 weeks	Real short-term antidepressant effect, inflated by unblinding, needing screening and support
Ayahuasca	The plant teaches and lets the healer see the sorcery behind illness	1 trial of 29, church cohorts without harm, rare psychoses, deaths from combinations and settings	Possible rapid antidepressant, dangerous with serotonergic drugs
Iboga	Initiation into Bwiti	Cardiac deaths outside Africa	No village use
Peyote	Sacrament of the Peyote Road, a way out of drinking	No cognitive harm in Navajo members	Safe enough within the Church, not transferable
Kava	A drink of welcome and peace	Small trials positive, large trial negative, liver cases from extracts	Weak anxiolytic, safest as the traditional drink in moderation
Cannabis	Religious and social use, harmless in moderation (India 1894)	No benefit for anxiety or PTSD in trials, dose-dependent psychosis	Not a treatment for mental illness, a harm to manage
Datura	Visionary and magical plant in several traditions	Delirium, hyperthermia, deaths	Poison only

11. What, if anything, is defensible at the village rung [OWNER]

Three positions are open to the owner, and the evidence does not choose between them.

Position A, no use. The book tells villages not to grow, hold or give any psychedelic, and teaches recognition and rescue only. This follows SY-04 category 5 and TR-09's Protocol 5. Its cost is that people will take wild mushrooms and home-grown cannabis anyway, without the screening rules this report contains [OWNER].

Position B, harm reduction without provision. The book gives the screening list, the identification rules and the sitting rules as safety information, because a warning is not a disclosure (THRIVING library, SY-04), but the village neither grows nor gives. This is the position the Protocols below are written for, and it does not depend on the owner allowing use [OWNER].

Position C, a governed use. A district with a trained, experienced healer could hold a single cultivated psilocybin strain, weigh it, screen strictly and sit with one person at a time, for severe depression or end-of-life distress that nothing else has helped. The evidence that this would help is grade A for synthetic psilocybin in a clinic and nothing for this setting. The risks are variable dose, suicidality in the following weeks, psychosis in the unscreened and the loss of the trial's follow-up. If the owner chooses it, it belongs at the district rung, never the household [OWNER].

Ayahuasca, iboga, peyote and *Datura* have no village use under any of the three. Their traditions belong to their peoples. Kava as a social drink of peeled root is a food question rather than a psychiatric one. Cannabis is a fact of the garden to be governed, not a medicine to be prescribed [OWNER].

Evidence grades

Remedy or practice	Grade	Basis
Synthetic psilocybin with support, depression, short term	A	Carhart-Harris 2021, Goodwin 2022, Hsu 2024 (effect small against antidepressant-trial placebo)
Psilocybin, durability beyond 3 months	C	Gukasyan 2022 (n 24, uncontrolled after week 8), Goodwin 2022 not sustained
Psilocybin, cancer distress	A	Griffiths 2016
Wild or home-grown mushroom in place of measured psilocybin	D	Content varies up to tenfold, no trial
Ayahuasca, depression	B	One trial of 29, church cohorts, unreplicated
Ayahuasca with an SSRI or St John's wort	X	Callaway and Grob 1998, Malcolm and Lee 2017
Iboga or ibogaine in a village	X	MI-06
Peyote within the Native American Church	C	Halpern 2005, safety only
Kava extract for anxiety	X	Sarris 2020 null, liver (MI-04, TR-15)
Kava water drink, social	D	Tradition, no trial
Cannabis for anxiety, depression or PTSD	X	Black 2019
MDMA for PTSD	A, contested	Mitchell 2021, 2023, FDA refusal 2024
Datura, *Brugmansia* as visionary	X	CDC 1995, Aćimović 2025
Shaman's or clinician's screening for psychosis history	B	dos Santos 2017, Johnson 2008, Dobkin de Rios 1970
A sober sitter throughout	B	Simonsson 2023, Bouso 2022 (risk higher without support)
Spore print and substrate to exclude *Galerina*	B	MykoWeb, PH-10
Blue bruising alone to confirm *Psilocybe*	X	Not decisive

Means ledger

Rung	Psilocybin and ayahuasca	Kava and cannabis	The poisoned or overwhelmed person
Hands and knowledge	Screening questions from memory, refusal, a sober sitter	Moderation rule, no driving, no pregnancy	Quiet, dark, never alone, away from water and heights
Hearth	No reliable dose. Spore print paper, one species per basket	Peeled root only, water drink, no alcohol with it	Shade, cool water on skin, sips of fluid, a written clock of hours

Rung	Psilocybin and ayahuasca	Kava and cannabis	The poisoned or overwhelmed person
Garden and still	Cultivation of one strain gives a known species but not a known dose [OWNER]. A scale gives weight, not content	Cannabis grows almost anywhere, potency unknown	Charcoal within the hour if the airway is safe (ME-14)
Village dispensary, 300	Written screen, a register of who took what, follow-up for four weeks [OWNER]	Register of heavy users, watch for psychosis	Benzodiazepine if salvaged, for agitation [VERIFY: dose in ME-14]
District infirmary, 3,000	Blood pressure, a second sitter, a bed for a week for the fragile, as in Natal [OWNER]	Treating cannabis psychosis (MI-05)	Physostigmine if salvaged (ME-14), cooling, catheter for retention
Hospital before the Fall	Synthetic 25 mg, trained therapists, ECG, psychiatric follow-up, regulated trials	Cannabinoid medicines for pain and spasticity	Intensive care, intubation, active cooling

What each rung changes: the hands rung prevents most harm by refusing the wrong person. The hearth adds identification, which prevents the amatoxin deaths. The garden makes the species certain and the dose no more certain. The dispensary adds records, which is how a village learns whether any of this helps. Only the hospital rung converts the trial evidence into a known dose.

Harm test

How they kill or maim. Psilocybin: through behaviour while intoxicated (falls, wandering, water), through psychosis or mania in the predisposed, through seizures with lithium (47 per cent of 62 reports, Nayak et al. 2021), through suicidal acts in the weeks after in the severely depressed (Goodwin et al. 2022), and above all through the wrong mushroom: amatoxin liver failure from *Galerina* or *Pholiotina*, kidney failure from *Cortinarius*. Ayahuasca: serotonin syndrome with serotonergic medicines, vomiting and aspiration, drowning and violence at ceremonies, psychosis in about 1 in 1,000 to 2,000 servings by the weak UDV estimate, and added plants (TR-09). Iboga: cardiac arrest. Kava: liver injury, rarely, and malnutrition and skin disease in heavy use. Cannabis: psychosis, dependence in about 1 in 5 users. *Datura*: hyperthermia, delirium, seizures, coma, death.

The dose or error that harms. For psilocybin, no village knows the dose: a weight of dried mushroom may differ tenfold. For ayahuasca, any SSRI, tricyclic, SNRI or St John's wort in the previous weeks [VERIFY: washout length, two weeks used in the trial]. For *Datura*, about 100 seeds hold 10 mg of atropine-equivalent [VERIFY, my arithmetic from CDC 1995]. For kava, very heavy use around 440 g of powder a week (Mathews et al. 1988). For cannabis, daily use of strong material.

Who must never receive them. Anyone with a personal history of psychosis, mania or bipolar illness. Anyone with a parent, sibling or child with schizophrenia or bipolar illness. Anyone taking lithium. Anyone taking an SSRI, SNRI, tricyclic, MAO inhibitor or St John's wort (absolute for ayahuasca, blunting for psilocybin). Pregnant or breastfeeding women. Children and adolescents. Anyone with heart disease, uncontrolled blood pressure, fainting or a history of fits. Anyone in alcohol or sedative withdrawal (MI-06). Anyone acutely suicidal, or in the first weeks after a major loss. Anyone with liver disease, for kava. The old and frail, by inference from the cardiovascular effects [VERIFY].

Misidentification and contamination. *Galerina*, *Pholiotina*, *Cortinarius* and *Inocybe* for *Psilocybe*. *Datura* growing in the vegetable patch. Unknown admixture plants in a brew. Mouldy kava root (Teschke, Sarris and Schweitzer 2012).

Signs that it is going wrong. Terror that does not ease with reassurance after the expected peak. Trying to leave, undress, or reach water. Hot, dry, flushed skin with wide pupils and picking at the air (anticholinergic, *Datura*). Sweating, fever, shaking, jerking muscles and diarrhoea (serotonin syndrome, MI-04). A fit. Vomiting that begins six or more hours after eating mushrooms (amatoxin, PH-10). Persisting suspicion, voices or sleeplessness days later (psychosis, MI-05). Talk of death in the weeks after.

What to do then. Protocols 2, 4 and 5.

Historical cases. Huautla 1960s, a tradition overrun. Jamestown 1676 and El Paso 1994 for *Datura*. Iquitos 2012 for an unscreened tourist. The MDMA trial site in Canada for the abuse of a patient by a therapist. Arnhem Land in the 1980s for kava taken out of its frame.

Red flags

- **Delirium with hot, dry skin, wide pupils and fever after any plant.** Anticholinergic poisoning. Without intensive care some die of heat. Do: shade, cool water, never alone, no restraint and abandonment, watch the bladder, physostigmine if salvaged (ME-14). Expect 24 to 48 hours.
- **Fever, rigid or jerking muscles, sweating and confusion after ayahuasca in someone on an antidepressant.** Serotonin syndrome. Do: no more of anything, cool, quiet, fluids. Death comes from heat. Tell the family it may not be survivable without a hospital.
- **Vomiting six hours or more after a wild mushroom.** Amatoxin until proved otherwise. Do PH-10's rehydration and watch everyone who ate (THRIVING library, PH-10).
- **A fit during or after.** Lay on the side, clear the space, time it, and ask about lithium and withdrawal.
- **Chest pain, collapse or a racing irregular pulse after iboga.** No village rescue exists.
- **New voices, fixed false beliefs or mania lasting more than a day.** Drug-precipitated psychosis or a first episode of illness. MI-05's care applies.
- **Talk of suicide in the weeks after a session.** The Goodwin events came mostly a week or more after dosing. Watch, visit daily, remove means (THRIVING library, MI-04).

Honest comfort. The person in terror is held by a calm voice, a hand on the arm if they accept it, and the repeated truth that this is the medicine or the plant and that it will pass. For the person poisoned by *Datura* or a death cap, the village's offering is cool water, a watcher who does not leave, and the truth.

The case against

Against the psychedelic renaissance, Suresh Muthukumaraswamy argues that unblinding inflates every effect size and that no psychedelic should be licensed until causal pathways are shown (Muthukumaraswamy 2023). Hsu's meta-analysis shrank psilocybin's effect from large to small when the comparison was made fair (Hsu et al. 2024). Goodwin's single dose did not last 12 weeks, and the first phase 3 trial found about half the phase 2 effect. The FDA's 2024 refusal of MDMA and the retractions show that a field funded by its believers can fail to report its own harms. Most trial participants were volunteers who wanted a psychedelic, which favours the result.

Against the romance of the shaman, Sabina's own testimony is that the medicine lost its power once taken without preparation and a wise one, and Brabec de Mori shows ayahuasca's antiquity partly invented for tourists (THRIVING library, TR-09). Against the romance of the hospital, the trials also needed an experienced sitter, preparation and a quiet night, which is what the healers already did, and Bouso's and Halpern's cohorts show long religious use without visible harm. The strongest argument against any village use is simple: every benefit was measured after

screening, with a known dose and trained sitters, and every serious harm rises when those are missing (Simonsson et al. 2023, Bouso et al. 2022).

10-line summary

1. Psilocybin 25 mg with support matched escitalopram over six weeks (QIDS difference 2.0, not significant) and beat 1 mg by 6.6 MADRS points at three weeks, not sustained at twelve.
2. Against fair placebo comparisons its effect is small (SMD 0.31), and phase 3 found about 3.6 points.
3. Suicidal ideation, behaviour or self-injury occurred in every dose group of the 233-patient trial, mostly a week or more after dosing.
4. Wild and cultivated mushrooms vary up to tenfold in psilocybin, so 25 mg is anywhere from about 1.25 to 25 g of dried material.
5. *Galerina* is excluded by rusty-brown spore print and growth on wood, not by blue bruising.
6. Ayahuasca beat placebo in one trial of 29 (response 64 against 27 per cent at day 7), and kills with SSRIs, tricyclics and St John's wort.
7. Lithium with a psychedelic produced seizures in 47 per cent of 62 reports.
8. Kava's 171-patient trial was negative, cannabis has no trial support for anxiety or PTSD, and daily strong cannabis carries 4.8 times the odds of psychosis.
9. Iboga and *Datura* kill, and have no village use.
10. The traditions and the trials converge on the same safety structure: refuse the predisposed, prepare, sit sober throughout, and follow up.

Open questions

- Whether any psilocybin benefit survives a truly blinded design, and how long it lasts.
- Whether the suicidality in the weeks after a dose is caused by the drug, by the end of hope after a failed treatment, or by the illness.
- What the true rate of harm is in traditional ayahuasca use, apart from tourism (TR-09 asked the same).
- How often a village could run a strict screen when family histories are incomplete after the Fall.
- Whether traditional Pacific kava drinking injures the liver at all.
- Whether a cultivated mushroom's dose could be standardised without an assay, for example by pooling and weighing a whole harvest [VERIFY, untested idea].
- How the owner frames psychedelics [OWNER].

Sources to read in full

1. Carhart-Harris et al. 2021, NEJM, psilocybin against escitalopram.
2. Goodwin et al. 2022, NEJM, with its adverse-event tables (not reached here).
3. Hsu et al. 2024, BMJ, the placebo-adjusted network meta-analysis.
4. Palhano-Fontes et al. 2019, Psychological Medicine, for the ayahuasca trial and its setting.
5. Johnson, Richards and Griffiths 2008, the safety guidelines.
6. dos Santos, Bouso and Hallak 2017, on psychosis.
7. Estrada 1981, *María Sabina: her life and chants*, the healer's own account (not read).
8. Black et al. 2019 and Di Forti et al. 2019 for cannabis.
9. Hinkle et al. 2024, JAMA Psychiatry, adverse events (only summaries read).

At the bedside after the Fall

Household. Nothing to give. What the household needs is the "who must never" list on the wall, the rule that no small brown mushroom is eaten, *Datura* pulled from the garden before it seeds, salvaged antidepressants and lithium

labelled with the words "never with ayahuasca or mushrooms", and one sober person who stays with anyone who has taken something. First failure to expect: a teenager who eats *Datura* seed or wild mushrooms with friends, out of sight.

Village of 300. A lay healer who knows the screening list, the anticholinergic and serotonin pictures, and PH-10's mushroom protocol. A register of who uses cannabis daily and of anyone with a family history of psychosis or bipolar illness, kept private. Whether the village holds or gives any psychedelic is [OWNER]. Needs: white paper for spore prints, a ledger, a cool shaded room, a clock. First failure to expect: someone on salvaged sertraline who drinks a brew brought by a trader.

District of 3,000. If the owner allows governed use, it lives here: one experienced healer, one cultivated species from a known culture, a scale, two sober sitters, a written screen, blood pressure taken before, a bed for a week for the fragile, and daily visits for four weeks [OWNER]. Without that decision, the district's job is rescue: cooling, physostigmine if salvaged, MI-05's psychosis care and ME-14's poisoning care. First failure to expect: the screen relaxed after a few good outcomes, and a first psychosis or suicide in someone who should have been refused.

Protocols

These protocols are for safety whatever the owner decides. None of them is a preparation or dosing procedure.

Protocol 1. The screen: who must never take a mind-altering plant

1. Ask every question aloud and write the answer. A "do not know" counts as yes.
2. Has the person ever heard voices, held beliefs others found impossible, or had a spell of days without sleep, racing speech and wild spending? If yes, never.
3. Has a parent, brother, sister or child had schizophrenia, bipolar illness or a psychotic breakdown? If yes, never.
4. Does the person take lithium? If yes, never (seizures in 47 per cent of reports).
5. Has the person taken any antidepressant, MAO inhibitor or St John's wort in the last two weeks [VERIFY: longer for fluoxetine]? If yes, never ayahuasca.
6. Is she pregnant, possibly pregnant or breastfeeding? Never.
7. Under 21 [VERIFY: trial floor 21 in Davis, 18 in Palhano-Fontes], never.
8. Heart disease, chest pain, fainting, fits, or blood pressure known high? Never.
9. In alcohol or sedative withdrawal, or within four weeks of a death or catastrophe, or speaking of suicide now? Not now.
10. Record the decision and the reason in the register. [OWNER] decides whether a "pass" leads to anything.

Protocol 2. Sitting with someone who has taken a psychedelic

1. Two sober adults, at least one known to the person. Never leave them alone until 12 hours have passed or the effects have clearly gone. Psilocybin effects are short (psilocin half-life 1.8 hours), ayahuasca sessions in the trial ran eight hours.
2. A room with no open water, fire, heights, tools or road access. Door watched.
3. Find out what, how much, when, and what else (medicines, alcohol, other plants). Write the time.
4. Speak slowly. Tell them what is happening, that it is the plant, that it will pass, and that you are staying.
5. Every 30 minutes write: awake or not, skin hot or cool, dry or sweating, pupils, pulse count over 15 seconds times four.
6. Vomiting: on the side, never on the back.
7. If the skin is hot and dry with wide pupils, go to Protocol 4. If sweating, shaking, jerking and feverish, go to Protocol 5. If a fit, see Red flags.
8. Visit the next day and weekly for four weeks. Ask about sleep, voices and suicide.

Protocol 3. Any small brown mushroom

1. Never eat any small brown mushroom gathered for its effects or for food unless the PH-10 gilled-mushroom protocol has been completed (THRIVING library, PH-10).
2. One species per basket. Note where each grew: wood, wood chips, grass or dung.
3. Anything from wood or wood chips: discard the whole basket.
4. Spore print every batch overnight on white paper under a cup. Any rusty or orange-brown print: discard the whole batch.
5. Keep one raw labelled specimen for 72 hours after anyone eats.
6. If vomiting begins six hours or more after eating, follow PH-10 Protocol 4 at once and watch everyone who ate.

Protocol 4. *Datura* and other anticholinergic poisoning

1. Signs: hot, dry, red skin, wide pupils, fast pulse, dry mouth, confusion, picking at the air, no urine.
2. Charcoal 1 g per kg up to 50 g only within the first hour and only if they can swallow safely (ME-14).
3. Shade, loose clothing, cool water sponged on the skin, fanning. Measure temperature hourly if a thermometer exists.
4. A dark, quiet room. One watcher at all times for 48 hours. Do not tie them and leave them, they overheat.
5. Check the bladder every 4 hours. A full painful bladder with no urine is retention.
6. Physostigmine only if salvaged and someone trained holds it (ME-14).
7. Find the plant, keep a sample, record seed or leaf and amount.

Protocol 5. A brew taken by someone on an antidepressant

1. Give nothing more of anything serotonergic, including St John's wort.
2. Signs of serotonin syndrome: sweating, fast heart, diarrhoea, fever, agitation, tremor, jerking muscles (THRIVING library, MI-04).
3. Cool as in Protocol 4. Fluids by mouth if awake.
4. Severe headache with a pounding pulse after a meal of aged cheese or fermented food suggests a pressure crisis [VERIFY: inferred, Malcolm and Lee 2017]. Keep them sitting up and quiet.
5. Record and send for the district if the fever rises or a fit occurs.

Numbers to carry

1. **Psilocybin content varies up to tenfold**: 0.1 to 2 per cent of dry weight between collections.
2. **25 mg psilocybin** is roughly 2.5 g of dried *P. cubensis* at 1 per cent, and could be 1.25 or 25 g.
3. **Rusty-brown spore print or growth on wood: discard.** *Psilocybe* prints purple-brown to black.
4. **Lithium plus a psychedelic: seizures in 47 per cent** of 62 reports.
5. **Never ayahuasca within two weeks of any antidepressant** or St John's wort [VERIFY: two weeks from the trial washout].
6. **Suicidal events came mostly a week or more after dosing**: visit for four weeks.
7. **Daily strong cannabis: 4.8 times the odds of psychosis.** About 1 user in 5 develops a use disorder.
8. ***Datura*: 24 to 48 hours of delirium, about 0.1 mg of atropine per seed.**
9. **Amatoxin latency 6 to 24 hours.** Vomiting six hours after mushrooms is an emergency.

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