PH-01 Temperate Europe: the forty plants that matter, with evidence grades

HEALING after the FALL, research library, PH-01

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Scope and method

This is the home pharmacopoeia of the book and the other regional reports are written around it, so it has to be harder on its own plants than on anyone else's. I went to the monograph record first, the trial record second, and treated the famous herbal as a record of belief until something else backed it. I read thirty-six European Union herbal monographs of the Committee on Herbal Medicinal Products (HMPC) as published PDFs rather than as summaries, so every dose cited to the EMA comes from the posology section of the monograph named, then went to the systematic reviews, the largest trials and the poisoning literature.

Three things are kept apart throughout: what the tradition says, what the record shows, and what modern science infers. They disagree more often than the herbal literature admits, and the disagreement is the useful part. The library has no other PH, ME or OR report, so this builds on SY-02 and TR-01.

1. What a monograph actually says, and what it does not

A reader who finds "EMA monograph" or "approved by Commission E" beside a plant will take it as proof. It is not, and the registers are the most important judgement in the chapter.

The EMA HMPC has two registers and they are not equivalent. A *well-established use* monograph means bibliographic data provide scientific evidence of effectiveness and safety over at least ten years in the European Union, which in practice means controlled trials. A *traditional use* monograph means only that the preparation has been used safely that way for thirty years, fifteen of them in the EU, and that efficacy is plausible. Every traditional monograph says on its face that the product is used exclusively on the basis of long-standing use (EMA 2015a and all the others read).

Of the forty plants below, six carry a well-established use indication for anything: St John's wort for mild to moderate depression, willow bark for short-term low back pain, horse chestnut seed for chronic venous insufficiency, ivy leaf as an expectorant, valerian for mild nervous tension and sleep disorder, and linseed for habitual constipation (EMA 2021, EMA 2017a, EMEA 2009a, EMA 2017b, EMA 2016a, EMA 2015b). Everything else, chamomile, yarrow, calendula, elder, hawthorn, sage, nettle, thyme and plantain among them, sits in the traditional register. The committee looked and found the trials wanting.

Commission E is older and weaker than its reputation. It published roughly 380 monographs between 1983 and 1995, about 254 positive and 126 negative, translated by Blumenthal in 1998 (Blumenthal 1998, counts from a 1999 Journal of Family Practice review and a German pharmacological encyclopaedia entry). The texts cite no primary

sources, a JAMA review noted missing citations and omitted toxicity, and nothing has been revised since 1994. Cite it as a historical position, never as evidence. ESCOP sits between the two and is useful mainly for constituent chemistry.

A monograph therefore tells you a preparation has been used for thirty years without obvious disaster, and gives a dose range a regulator thought safe. That is worth a great deal after the Fall, because a lay healer cannot derive a safe dose range from first principles. It does not tell you the plant works.

2. The ranked forty

Ranked by value at the bedside: evidence grade weighted by how often the problem arises and how easily the plant is grown or gathered, so a grade C plant for a weekly problem outranks a grade A plant for a once-a-decade one. Doses are adult unless stated, and are the EMA posology for the dried herb.

#	Plant, part	Use	Grade	Dose	Chief harm, lookalike
1	*Salix* spp., bark	Pain, fever	B back pain, D fever	Decoction 4 g/200 ml, boil 15, stand 15 min, 3x/day after meals	Salicylate. Never under 18, third trimester, ulcer, clotting disorder
2	*Allium sativum*, bulb	Blood pressure, food antisepsis	B, C	Powder 900-1380 mg/day, 3-5 doses	Bleeding with salvaged anticoagulants. Raw garlic burns skin
3	*Linum usitatissimum*, seed	Constipation, poultice	A/B	10-15 g whole or bruised, 2-3x/day, 150 ml water each time	Obstruction if taken dry. Not under 12
4	*Althaea officinalis*, root	Dry cough, sore throat, gut	C	Cold macerate 0.5-3 g/150 ml, max 15 g/day. Age 3-5, 0.5-1.0 g 3x	Delays absorption of other medicines. Space by 1 hour
5	*Matricaria chamomilla*, flower	Gut spasm, mouth, wound wash	C	1.5-4 g/150 ml 3-4x/day. Gargle 1-5 g, wash 3-10 g, per 100 ml	Asteraceae allergy. No baths on open wounds or in fever
6	*Thymus vulgaris*, herb	Productive cough, gargle	B in combination, C antibacterial	1-2 g/150 ml, 3-4x/day	Oil caustic undiluted. Not under 12

#	Plant, part	Use	Grade	Dose	Chief harm, lookalike
7	*Hypericum perforatum*, flowering tops	Depression, infused wound oil	A, D	Dry extract 300-600 mg 1-3x/day	Induces CYP3A4 and P-gp, wrecking salvaged contraceptives, warfarin, antiretrovirals. Photosensitises
8	*Mentha* x *piperita*, leaf, oil	Dyspepsia, irritable bowel	B	4.5-9 g/day in 3 doses. Age 4-12, 3-5 g/day	Worsens reflux. Oil kills infants by inhalation
9	*Plantago lanceolata*, *P. major*, leaf	Sore throat, dry cough, minor wounds	C throat, D wounds	1.4-2 g/150-250 ml, 2-3x/day, 4-6 g/day	Very low. Oral use not under 12
10	*Quercus robur/petraea*, bark	Diarrhoea, weeping skin, mouth	C	Decoction 3 g/250 ml 3x/day, max 3 days. Mouth 20 g/L, bath 5 g/L	Tannin binds iron and drugs. Not under 18
11	*Achillea millefolium*, flowering tops	Appetite, gut spasm, wound wash	C gut, D haemostasis	1.5-4 g/150-250 ml 3-4x/day. Wash 3-4 g/250 ml	Asteraceae allergy, phototoxic rash. Gather by leaf, not silhouette
12	*Calendula officinalis*, flower	Minor wounds, sunburn, mouth	C	Infusion 1-2 g/150 ml, dressing 2-4x/day, off after 30-60 min. Salve 2-10%	Asteraceae allergy. Not under 6 on skin
13	*Sambucus nigra*, flower, cooked ripe fruit	Early common cold	C	Flower 2-5 g/150 ml 3x/day	Raw fruit, leaf, bark, green stem cyanogenic and emetic. Cook the fruit
14	*Hedera helix*, leaf	Productive cough	B	Dry extract 15-65 mg 1-3x/day. Age 2-5, 8-18 mg	Never under 2 years. Saponins irritate the stomach
15	*Valeriana officinalis*, root	Sleep, nervous tension	C	0.3-3 g/150 ml up to 4x, last 30-60 min before bed. Needs 2-4 weeks	Not under 12. No acute effect, useless for one bad night

#	Plant, part	Use	Grade	Dose	Chief harm, lookalike
16	*Aesculus hippocastanum*, seed	Chronic venous insufficiency	A	Extract, 50 mg aescin twice daily, 4 weeks minimum	Raw seed poisonous by mouth. Not under 18
17	*Rhamnus frangula*, aged bark	Stubborn constipation	B	Anthranoid, bark aged a year or heat-treated	Fresh bark causes violent vomiting. Not in pregnancy or obstruction
18	*Urtica dioica*, leaf	Joint pain, urine flow, food iron	C joint, D urinary	2-4 g, 3-6x/day, max 12 g/day and 4 weeks	Never where fluid must be restricted
19	*Urtica dioica*, root	Prostate symptoms	C	Decoction 1.5 g, 3-4x/day	Relieves symptoms, so masks prostate cancer
20	*Potentilla erecta*, rhizome	Diarrhoea, mouth	C	Infusion 1.4-4 g, max 12 g/day, decoction max 6 g/day, 3 days	Tannin, stomach upset. Not under 18
21	*Agrimonia eupatoria*, herb	Diarrhoea, gargle, skin wash	C	1.5-4 g/250 ml 2-3x/day. Gargle 1.5 g/150 ml	Low. Not under 12
22	*Vaccinium myrtillus*, dried fruit	Diarrhoea, mouth	C	Decoction 5-15 g/250 ml 3-4x/day, 15-60 g/day. Mouth 20 g/200 ml	Fresh fruit is a mild laxative. Use the dried fruit
23	*Salvia officinalis*, leaf	Throat gargle, sweating, dyspepsia	C	Gargle 2.5 g/100 ml. Tea 1-2 g/150 ml 3x/day	Thujone. Oral max 2 weeks, 6.0 mg thujone/day. Adults only
24	*Symphytum officinale*, root, leaf	Sprains, bruises, external only	A sprain, X oral	Thin layer of 10% extract twice daily, max 10 days, intact skin	Pyrrolizidine alkaloids destroy the liver by mouth. Never under 18. Foxglove lookalike kills
25	*Crataegus* spp., leaf with flower	Palpitation with anxiety	C	1-2 g/150 ml up to 4x/day, max 6 g	Masks angina and heart failure. See the red flags
26	*Filipendula ulmaria*, flowering herb	Cold, minor joint pain	C	Infusion 1.5-6 g, max 18 g/day and 4 weeks (EMEA 2011b)	Salicylate cross-reaction. Not under 18

#	Plant, part	Use	Grade	Dose	Chief harm, lookalike
27	*Tilia cordata/platyphyllos*, flower	Cold, restlessness	C	1.5 g/150 ml, 2-4x/day, max 6 g/day. Age 4-12, 1 g (EMEA 2011)	Low. Not under 4
28	*Verbascum densiflorum/thapsus*, flower	Sore throat with dry cough	D	Over 12s only. Monograph superseded, under review	Hairs irritate the throat. Strain through cloth
29	*Melissa officinalis*, leaf	Restlessness, gut spasm	C	1.5-4.5 g/150 ml, 1-3x/day	Low. Not under 12
30	*Foeniculum vulgare*, fruit	Infant and adult colic, cough	C	1.5 g/250 ml steeped 15 min, 3x/day. Age 4-12, 1.0 g/100 ml	Estragole limit. Not under 4. Hemlock lookalike in the umbels
31	*Humulus lupulus*, strobile	Sleep, restlessness	D	500-1000 mg/150-200 ml, 30-60 min before bed	Low. Not under 12
32	*Capsella bursa-pastoris*, herb	Heavy menstrual bleeding	D	1-5 g, 2-4x/day, max 20 g/day, from 3-5 days before the period	Adults only. Not for bleeding after birth
33	*Rosa canina*, hip	Vitamin C, joint pain	C joints, B vitamin C	5-10 g/day powdered hip in the trials. Tea 2-5 g, 3-4x/day	Strain out the irritant hairs inside the hip
34	*Pinus sylvestris*, needle, resin	Scurvy prevention, chest rub	C, D	Winter needles hold 3 to 6 times the summer ascorbic acid (Raal and others). Infuse, do not boil	Resin and oil irritate skin. Yew (*Taxus baccata*) is deadly and evergreen
35	*Taraxacum officinale*, root with herb	Appetite, bile, urine flow	D	Decoction 3-4 g or infusion 4-10 g, up to 3x/day	Never in gallstones, bile obstruction, ulcer, kidney or heart failure
36	*Betula pendula/pubescens*, leaf	Urinary flushing	D	2-3 g/150 ml up to 4x/day, 2-4 weeks	Never where fluid must be restricted. Not under 12

#	Plant, part	Use	Grade	Dose	Chief harm, lookalike
37	*Equisetum arvense*, herb	Urinary flushing, wound wash	D	1-4 g/150 ml 3-4x/day, max 12 g/day. Wash 10 g/L	Thiaminase. *E. palustre* is the toxic relative. Not under 12
38	*Juniperus communis*, cone berry	Urinary flushing, dyspepsia	D	2 g crushed berries, 2-3x/day	Never in severe renal disease, pregnancy, under 18
39	*Artemisia absinthium*, herb	Appetite, dyspepsia, worms	D	1-1.5 g/150 ml, max 3 g/day and 2 weeks	Thujone, convulsion risk. Never in pregnancy or under 18
40	*Rubus idaeus*, leaf	Period pain, mouth, diarrhoea	D	Dry extract 113-226 mg, 3-4x/day after meals	The labour trial was null. Do not promise an easier birth
40b	*Arnica montana*, flower	Bruise, sprain, external only	D to X	Thin layer of 20-25% tincture preparation, 2-3x/day	Toxic by mouth. Never on broken skin or under 12

3. The plants that earn their place on evidence

Six carry grade A or B for at least one use. They are the spine of the European pharmacopoeia, and not the famous ones.

Willow bark, grade B for low back pain. Chrubasik and colleagues randomised 210 patients with an exacerbation of chronic low back pain to extract delivering 120 or 240 mg of salicin daily or placebo, tramadol the only rescue drug, over four weeks. Of 191 completers, 39 per cent on high dose, 21 per cent on low and 6 per cent on placebo were pain-free without tramadol for at least five days in the final week (abstract and secondary summaries read). Cochrane rated this moderate quality across two trials and 261 people (Oltean 2014, in THRIVING library, SY-02). The EMA grants well-established use for the dry extract, maximum four weeks, contraindicated under 18 (EMA 2017a), and notes that the salicylic acid produced is small and other constituents may act. The catch is strength, set out in section 7. The EMA also publishes a deliberately modest traditional decoction, which is what a village can make.

St John's wort, grade A for mild to moderate depression and grade X for its interactions. Linde, Berner and Kriston pooled 29 trials and 5,489 patients for a response rate ratio against placebo of 1.28 (95 per cent CI 1.10 to 1.49) in nine larger trials and 1.87 (1.22 to 2.87) in nine smaller ones, ratios near 1.0 against tricyclics and SSRIs, and fewer dropouts (Linde, Berner and Kriston 2008). The review warns that trials from German-speaking countries were significantly more positive and that the results apply only to the extracts tested (EMA 2021 grants well-established use).

Then the harm. The monograph contraindicates concomitant coumarin anticoagulants, ciclosporin, tacrolimus, protease inhibitors, nucleoside reverse transcriptase inhibitors and irinotecan, because hypericum induces CYP3A4, CYP2B6, CYP2C9, CYP2C19 and P-glycoprotein. Two heart transplant patients in Zurich suffered acute rejection when it lowered their ciclosporin (Ruschitzka and others 2000, in THRIVING library, SY-02), and with a low-dose

contraceptive pill intermenstrual bleeding rose from 35 per cent to between 77 and 88 per cent of cycles (Pfrunder and others 2003, same source). Salvaged contraceptive pills may be the most valuable drug a village holds, and a healer handing out a tea for low mood will not connect the two.

Horse chestnut seed, grade A for chronic venous insufficiency. Pittler and Ernst pooled 17 randomised trials, with six placebo-controlled studies in 543 participants showing a clear reduction in leg pain and similar results for oedema, leg volume, circumference and itching over two to 16 weeks, the extract equivalent to rutosides and to compression (Pittler and Ernst 2012, summary and abstract read, full text paywalled). The EMA grants well-established use (EMEA 2009a). Venous insufficiency is a disease of standing all day, which is what subsistence agriculture is, but the extract was equivalent to compression, so a village that can weave a firm bandage already has the comparator. The seed is poisonous raw and extracting aescin is a chemistry problem, not a kitchen one.

Ivy leaf, grade B as an expectorant. The EMA grants well-established use for productive cough on an adult placebo-controlled trial and paediatric trials showing comparability to acetylcysteine (EMA 2017b). A 2010 systematic review found no convincing evidence, citing methodological flaws and missing placebo controls, while noting that the one placebo-controlled trial of an ivy and thyme combination, in 361 outpatients, did significantly reduce cough frequency and duration (both read in summary). Ivy is contraindicated under two years because secretolytics can worsen respiratory symptoms, the most important paediatric contraindication here, because cough syrup for a toddler is what a frightened parent reaches for.

Linseed, grade A/B for constipation (EMA 2015b). It is the only bulk laxative a temperate village can grow in quantity and doubles as a poultice base. The error that harms is taking it without water, which turns a laxative into an obstruction.

Garlic, grade B for blood pressure. Ried's pooled analyses give a systolic reduction of 5.1 plus or minus 2.2 mmHg against placebo across 20 trials and 970 participants, rising to 8.7 in hypertensive subjects, and 8.3 plus or minus 1.9 mmHg across 12 trials in 553 hypertensive participants (Ried 2016, Ried 2019, abstracts read), with his own trials of a commercial aged extract inside those pools. The EMA grants garlic only traditional use (EMA 2016b). Regulator and meta-analyst disagree, and the honest position is that garlic lowers blood pressure by a real but modest amount in people whose pressure is high. The antibacterial reputation does not transfer to wounds. In vitro activity against *Staphylococcus aureus* is genuine, a mouse wound model found allicin ineffective as used, no randomised human trial of topical garlic for wound infection appeared in searching, and raw garlic burns skin. For wounds, use honey and sugar (THRIVING library, WO-02).

Comfrey root, grade A externally and grade X by mouth, the sharpest split in the chapter. Koll and colleagues randomised 142 patients with ankle sprain to a 35 per cent comfrey root extract ointment or placebo, about 2 g four times daily starting within six hours of injury, with pain improving significantly more on comfrey (Koll and others 2004). Predel and colleagues compared the same ointment with 1 per cent diclofenac gel in 164 patients over seven days and found it not inferior (Predel and others 2005, with a post-hoc re-analysis claiming superiority, D'Anchise and others 2007). Yet the EMA grants comfrey root only *traditional* use, capped at 0.35 micrograms of pyrrolizidine alkaloids a day (EMA 2015c).

By mouth comfrey is a different category, because pyrrolizidine alkaloids block the small veins of the liver. In Gulran district, Afghanistan, 1974 to 1976, about 7,800 people were affected and about 1,600 died from bread made with wheat contaminated by *Heliotropium popovii*, and the epidemic returned in 1999 to 2001 with about 400 cases and over 100 deaths (Kakar and others 2010, in THRIVING library, SY-02). Comfrey carries the same class of poison. Print the rule beside the plant's name every time: on the skin, never in the mouth, never on a broken surface, never on a child, never beyond ten days.

4. The convergent workhorses

Below the evidence tier sit the plants used everywhere by unrelated peoples, with plausible chemistry and no proper testing. This is grade C, and where most of the useful work gets done, because the problems are common and the harms small.

The demulcents. Marshmallow root, linseed and plantain leaf work by one mechanism, a water-soluble mucilage that coats an irritated surface. The EMA grants marshmallow root traditional use for oral or pharyngeal irritation and associated dry cough, as a cold macerate (EMA 2016c). The preparation matters, because cold water extracts the mucilage while heat pulls out starch. The soothing is real. Nothing shows any of them shortens an illness.

Plantain's wound-healing reputation, the first thing most survival books mention, does not survive the record. A systematic review of animal wound studies screened 176 publications, included four, and found no evidence of in vivo effectiveness, all at high risk of bias (Cardoso and others 2021). Its antibacterial activity is solvent-dependent, present in methanol extracts and absent in water. A chewed plantain leaf is a clean dressing with a mild astringent, not an antiseptic.

The tannin astringents. Oak bark, tormentil, agrimony, dried bilberry and raspberry or bramble leaf are one remedy in five coats. All bind protein on a mucosal surface, all are given for diarrhoea and inflamed mouths, and the EMA doses them in one register, with a three-day limit on oak bark (EMEA 2009b, EMA 2014). Grade C on convergence plus an obvious mechanism. The caveat matters more than the remedy. Astringents firm a stool and do not replace fluid, and in cholera, dysentery or infant rotavirus what kills is water loss, so a healer who gives oak bark and feels satisfied has done the easy half of the job and skipped the half that works.

The carminatives and nervines. Chamomile, peppermint, lemon balm, fennel, linden, hops and valerian are the daily remedies of European domestic medicine, and their grades run C down to D. Peppermint is the best: Ingrosso and colleagues pooled 10 trials and 1,030 patients for peppermint oil in irritable bowel syndrome, with a number needed to treat of 4 (95 per cent CI 2.5 to 71) for global symptoms and 7 (4 to 24) for abdominal pain, more adverse events at a risk ratio of 1.57, and a stated quality of evidence of very low (Ingrosso and others 2022). An earlier pool reached the same conclusion (Alammar and others 2019), but the two most recent trials, by Weerts and by Nee, missed their primary endpoints, and that pattern recurs through this whole group. Chamomile adds one small positive trial in generalised anxiety, 57 patients over eight weeks, Hamilton Anxiety score 3.17 points lower, responders 57 against 38 per cent (Amsterdam and others 2009, secondary summaries read, p-values not obtained [VERIFY]).

Valerian is the cautionary tale. Bent and colleagues pooled 16 studies and 1,093 patients for a relative risk of improved sleep of 1.8 (1.2 to 2.9), noting publication bias and methodological problems (Bent and others 2006). Fernandez-San-Martin and colleagues then pooled 18 placebo-controlled trials for a relative risk of 1.37 (1.05 to 1.78) on the yes/no sleep quality question, a standardised mean difference of minus 0.02 (minus 0.35 to 0.31) on visual analogue sleep quality, and a mean difference of 0.70 minutes (minus 3.44 to 4.83) in time to fall asleep (Fernandez-San-Martin and others 2010). People say they slept better and nothing measurable changed. The EMA still grants well-established use and states that valerian is unsuitable for acute treatment (EMA 2016a).

Hawthorn is the clearest case of evidence reversing. The tradition says it strengthens the heart, and the early record agreed: Guo, Pittler and Ernst found 14 trials, 10 poolable with 855 patients, with significant benefit in symptom control and maximal workload (Guo, Pittler and Ernst 2008). Then came two trials built on modern heart failure therapy. SPICE randomised 2,681 patients at 156 European centres to WS 1442 at 450 mg twice daily or placebo, with no significant effect on the composite primary endpoint, cardiac mortality at 24 months 9.7 per cent, hazard ratio 0.89 (0.73 to 1.09, p = 0.269), and a hypothesis-generating subgroup at ejection fraction 25 per cent or more showing reduced sudden cardiac death (0.59, 0.37 to 0.94) (Holubarsch and others 2008). HERB-CHF randomised 120 patients to the same dose for six months, with no difference in six-minute walk distance (p = 0.61), quality of life, neurohormones or inflammation, and more adverse events (p = 0.02) (Zick and others 2009). The EMA grants leaf and flower only traditional use for palpitations related to nervousness (EMA 2016d). Hawthorn tea is a grade

C comfort measure for a frightened heart, and a village that treats breathlessness and swollen ankles with it will bury the patient.

5. Tradition without a record

Ten are here because the tradition is loud, not because anything was shown.

Yarrow's haemostatic reputation is the most famous and the least supported. The record is a 2024 study in twelve female Wistar rats, where a yarrow-soaked sponge on a liver incision cut bleeding time by 36.1 and 31.9 per cent against control (Hepatology Forum 2024, abstract read), and a 2026 coagulation-assay paper that tested the extract with silver nanoparticles and so cannot isolate the plant. The alkaloid achilleine is cited everywhere as the clotting agent and I found no primary study isolating and testing it [VERIFY]. The EMA grants yarrow traditional use for appetite, mild dyspepsia, menstrual spasm and superficial wounds, with no haemostatic indication (EMA 2020). For bleeding the evidence is pressure, elevation, packing and the tourniquet (THRIVING library, WO-01). Yarrow is a wound wash with a legend attached.

Shepherd's purse is grade D for heavy menstrual bleeding on one small triple-blinded trial, 42 against 42 women with mefenamic acid in both arms, reporting greater reduction in blood loss by the third month (Iranian trial, abstract read, date not established [VERIFY]). The EMA relied on traditional use and could draw no firm conclusion from that study because of missing information on the extract (EMEA 2010c). It must not go near bleeding after birth, where what works is uterine massage, uterotonics and bimanual compression (THRIVING library, MA-02).

Raspberry leaf is the most instructive failure because the tradition is so confident. Simpson and colleagues randomised 192 low-risk first-time mothers in Sydney to 2.4 g of raspberry leaf extract daily or placebo. Second stage of labour was 9.6 minutes shorter and instrumental delivery 19.3 against 30.4 per cent, neither difference significant (Simpson and others 2001). The EMA grants the leaf traditional use for period pain, mouth inflammation and mild diarrhoea, with no obstetric indication (EMEA 2012). It is probably harmless and probably useless, and a midwife who promises an easier labour spends credibility she will need later.

Arnica is grade D moving towards X. Ernst and Pittler found eight trials of homeopathic arnica, most severely flawed, with efficacy beyond placebo unsupported (Ernst and Pittler 1998), and Brito and colleagues found the same across 11 trials of topical arnica at 10 per cent and below (Brito and others 2014). The EMA still carries a traditional-use monograph (EMEA 2009c).

The remaining grade D entries are the flushing plants: birch leaf, horsetail, juniper and dandelion. All four carry an identically worded EMA traditional indication, to increase the amount of urine to achieve flushing of the urinary tract as an adjuvant in minor urinary complaints, and all four the same contraindication, any condition in which fluid intake must be restricted (EMA 2016e, EMA 2016f, EMEA 2009d, EMEA 2010b). The useful instruction is to drink, and the leaf is an excuse for drinking.

6. The poisons inside the pharmacopoeia

Four of the forty carry a toxicity a lay reader will not expect, to be named before the use is.

Thujone, in sage and wormwood. The EU tolerable daily intake of 10 micrograms per kilogram came from a no-observed-effect level for convulsions of 5 mg/kg in the female rat with a safety factor of 500, and the Scientific Committee on Food considered the data inadequate even to set one. For medicinal use the HMPC set 6.0 mg of thujone per person per day and capped oral sage at two weeks (EMA thujone public statement, read through the published overview of comments). Food law limits are 10 mg/kg in alcoholic beverages and 35 mg/kg in beverages made from *Artemisia* species [VERIFY: the regulation text was not retrieved]. A sage gargle is safe because it is spat out, a sage tea at 1 to 2 g three times daily for two weeks is within the limit, and a strong sage or wormwood infusion drunk daily for months is a seizure risk nobody will attribute to the pot.

Cyanogenic glycosides in elder. Only the cooked ripe fruit and the flower are food. Raw fruit, leaf, bark and green stem carry cyanogenic glycosides including sambunigrin, producing nausea, vomiting, cramps, diarrhoea and weakness. In Monterey County, California, in August 1983, about 25 people fell ill after drinking juice pressed from fresh uncooked elderberries with leaves and stems. A 2021 review states that cyanide was implicated then disproven, and that measured sambunigrin in European products ranged from 0.8 to 18.8 micrograms per gram in one study and was not quantifiable in another (Appenteng and others 2021). The rule stands on the symptom reports anyway: cook the fruit, and use only flower and fruit.

Pyrrolizidine alkaloids in comfrey, covered in section 3, with the 0.35 microgram daily cap and the ten-day external limit.

Thiaminase in horsetail. Thiaminase destroys thiamine and is the toxic principle of field horsetail, killing livestock within one to four weeks when dried horsetail is mixed into hay, after weakness, weight loss, staggering and tremor. The EMA sets a two to four week course (EMA 2016f). The risk after the Fall is not a cup of tea but a diet already short of thiamine, and identification, because *Equisetum palustre*, marsh horsetail, is the toxic relative and grows in the wet ground where a gatherer will be standing.

7. From extract to cup: the dose problem the trials do not solve

Every grade A and most grade B results above were obtained with a standardised extract: a defined drug-extract ratio, a defined solvent and a marker compound measured in a laboratory. Chamomile's monograph lists fifteen distinct preparations, from ethanol 96 per cent with ammonia to propan-2-ol at 48 per cent, and the doses differ by more than tenfold between them (EMA 2015a). The St John's wort trials used extracts of defined hypericin and hyperforin content, and five commercial products contained between 1.7 and 38.5 per cent of their label claim (Hu and others 2004, in THRIVING library, SY-02). Davidson and colleagues found that Cochrane reviews of herbal medicine often failed to report part, dose, extract ratio and solvent, with marker substances stated for only 8 of 326 herbal medicines in the included trials (Davidson and others 2013, same source).

The rule the book should state once and enforce everywhere: **a trial grade belongs to the preparation that was tested, not to the plant.** Grade A beside St John's wort means a defined ethanolic extract at a measured dose outperformed placebo, not that a handful of flowering tops in a mug does. The traditional-use monographs give tea doses because the regulator is registering what people actually did, and those doses carry no efficacy claim.

A balance weighing to the nearest gram, which a forge can make, converts "a handful" into "4 g" and removes the largest single source of error. Plant variability no village can remove. Fix the preparation, write it down and keep it the same, so one healer's results are comparable between patients (THRIVING library, TR-01).

8. Lookalikes that kill

Foxglove for comfrey. An elderly couple in Washington State died in 1977 after a home-prepared tea in which foxglove (*Digitalis purpurea*) had been used instead of comfrey. The husband found foxglove in the refrigerator after symptoms began, and his wife was dead when the ambulance arrived (CDC 1977). In Taiwan nine people were poisoned by a comfrey tea that was foxglove, three with cardiotoxicity (Lin and others 2010), and a 55-year-old Taiwanese woman died on hospital day seven in a separate case. The rosettes are close. Comfrey leaf is rough and bristly and runs down the stem as a wing, with a root black outside and white and slimy inside. Foxglove leaf is soft, grey-green, downy underneath and finely toothed, with a dry fibrous root. The rule to print is harder than any field mark: comfrey is external only, so a comfrey tea is a mistake before it is a misidentification.

Autumn crocus for wild garlic. French poison centres recorded 28 cases of *Colchicum autumnale* confused with *Allium ursinum* between 2020 and 2022, with two deaths, clustered March to May and half of them from pesto (ANSES 2020 and 2022). A 62-year-old man in Croatia died after a salad, the second fatal Croatian case in three years (Brvar and others 2005). Colchicine has no antidote. The field mark is smell: crush the leaf, and wild garlic

smells of garlic while autumn crocus smells of nothing. Lily of the valley causes the same confusion. ANSES notes that severity depends on quantity, on highly variable colchicine content, and on co-medication with macrolides or vitamin K antagonists.

Hemlock for the umbellifers. *Conium maculatum* has been eaten as fennel in northern Italy, as wild carrot in Maryland and as parsley in Washington State, running from vomiting through tremor and ataxia to death by respiratory paralysis, with no antidote (Maryland Poison Center 2016 and the case reports cited there). Symptoms begin from 15 minutes to several hours after eating, and alkaloid content varies through the season and even the day, which is why no reliable lethal dose could be found [VERIFY]. The field marks are the purple-blotched hairless stem and the foul mousy smell. The carrot family is the one family where a lay forager should not gather on leaf identification alone.

The brief's steer about hemlock standing near yarrow is better stated the other way round: yarrow is an Asteraceae whose flat-topped flower reads as an umbel at a distance, so gather by leaf and smell, never by silhouette.

Yew for pine. *Taxus baccata* is evergreen, grows where pines grow, and every part but the red aril is lethal. Anyone making conifer needle tea must know the flat two-ranked dark yew needle with its pale underside from the paired long needles of Scots pine.

9. Evidence grades

Every plant is graded per use in the table in section 2, with the reasoning in sections 3 to 5. The three-way separation comes out as follows. **Tradition** claims an action for all forty. **The record** supports one for six at grade A or B, and for comfrey only on the skin. **Modern inference** supplies a plausible mechanism for about twenty more, which is why they sit at grade C, and nothing for the ten at grade D beyond the fact that people kept using them. The sharpest divergences are St John's wort, A for depression and X for interactions, comfrey, A externally and X orally, hawthorn, demoted by SPICE and HERB-CHF, valerian, well-established in the register and C on the data, and yarrow and arnica, famous and D. Arnica is listed as a fortieth alternate because a healer will meet it and must know it is external only and probably inert.

10. Means ledger

Rung	What it can do	What it changes
Hands and knowledge	Identify, gather in season, chew a leaf, press a poultice, know what not to touch	Removes the fatal errors. Identification is the whole skill here
Hearth	Infusion, decoction, cold macerate, poultice, gargle, wash, honey or sugar dressing, fat salve	Delivers every grade C remedy at its monograph tea dose, about 80 per cent of the usable value here
Garden and still	Tinctures at a stated drug-extract ratio, year-round stock, salves of fixed composition, repeatable weights, seed saving	Turns "a handful" into "4 g". The first rung where results are comparable between patients
Village dispensary (300)	Written formulary, dose book, labelling, treatment register, the garden in Protocol 1, refusal of dangerous requests	Catches the harms. The register is what tells a village in three years that the tannin cure never worked

Rung	What it can do	What it changes
District infirmary (3,000)	Comparison by lot between two preparations, a poisons record, interaction checking against salvaged drugs	The only rung at which these grades can be revised rather than inherited
Hospital before the Fall	Assayed standardised extract, randomised trials, antidotes, dialysis, serum levels	Generated every grade A result above, and cannot be rebuilt below the district rung

Nothing below the district rung changes a death rate this report can quantify, and only the district rung can learn anything new.

11. Harm test

How these plants kill or maim. By misidentification above all: foxglove, autumn crocus and hemlock have each killed careful people. By organ toxicity on chronic use: pyrrolizidine alkaloids destroy the small hepatic veins, thujone lowers the seizure threshold, anthranoids in frangula cause bowel atony and potassium loss. By interaction: St John's wort disables salvaged contraceptives, anticoagulants and antiretrovirals. By delay: hawthorn while the heart fails, oak bark while the patient dries out.

The doses and errors that harm. Comfrey by mouth at any dose. Sage or wormwood beyond two weeks or above 6.0 mg thujone a day. Elder raw or undercooked. Linseed without water. Raw horse chestnut seed. Ivy under two. Willow or meadowsweet in a child, the Reye's syndrome question the under-18 contraindications exist to avoid. Juniper in kidney disease. Any diuretic leaf in someone already dry.

Who must never receive them. In pregnancy: wormwood, juniper, oral sage, therapeutic-dose yarrow, willow in the third trimester absolutely, and as a working rule everything here except demulcents, carminatives at food doses and external preparations. The rat study behind the yarrow caution found reduced fetal weight without maternal toxicity, a weak basis for a strong rule, which stands anyway because the cost of being wrong is a dead pregnancy. In children: ivy under two, peppermint and fennel under four, most of the rest under twelve, comfrey and wormwood under eighteen. In the old, the frail and the dehydrated: all the diuretic leaves.

Signs it is going wrong. Yellow eyes and a belly swelling with fluid while the face and arms stay normal, the mark of veno-occlusive disease (Kakar and others 2010). A rash on sun-exposed skin on St John's wort. Vomiting, burning mouth, salivation, tremor and unsteadiness within hours of a foraged meal. Slow or irregular pulse with vomiting and disturbed colour vision after a herbal tea, which is digitalis. Diarrhoea starting hours after a meal of leaves and catastrophic on day two with falling blood counts, which is colchicine.

What to do then. Stop the remedy. For colchicine and coniine there is no antidote and nothing but supportive care, fluid and warmth. For digitalis the antidote is a hospital drug, so stop all intake, keep the patient still, and give nothing that lowers potassium. For pyrrolizidine exposure, stop permanently and expect no recovery. In every case keep the plant, because a sample in a jar is what lets the next healer identify what killed this one.

Historical cases are in sections 3, 6 and 8: Washington State 1977 and Taiwan 2010, foxglove for comfrey. France 2020 to 2022 and Croatia 2005, autumn crocus for wild garlic. Gulran, Afghanistan 1974 to 1976, about 1,600 pyrrolizidine deaths.

12. Red flags

- Breathlessness at rest, both ankles swollen, waking at night gasping. Heart failure. Hawthorn will not touch it. Rest, sit the patient up, restrict salt, tell the truth.
- Chest pain spreading to arm, jaw or upper belly. The EMA hawthorn monograph says see a doctor immediately. The village has no doctor.
- Fever with blood in the urine, or loin pain. Pyelonephritis, and the flushing leaves are contraindicated from that moment.
- Breathlessness, fever or purulent sputum during a cough remedy. Every cough monograph warns of this. It means pneumonia, and the remedy is now a delay.
- Bloody stool, or diarrhoea in a small child past a day. Fluid is the treatment, and an astringent alone is a decision to let the child dry out.
- Yellow eyes and a swelling belly in anyone taking a herbal remedy. Stop everything.
- Poisoning by autumn crocus, hemlock or foxglove. No treatment exists below the district rung.
- Heavy bleeding after birth. Use the mechanical and uterotonic measures (THRIVING library, MA-02).

What to do anyway: name the thing, stay, give water and warmth, control pain with what the village has, let the family in, and do not spend the last days persuading everyone that another tea will work. Honest comfort is a treatment, and the village can always give it.

13. The case against

Ernst's argument that the grades are mostly empty. Ernst and his collaborators produced many of the reviews cited above, and together their conclusions are far more negative than the individual positive ones suggest. An overview of 50 reviews of 50 herbs found serious adverse effects for four and minor ones for 31 (Posadzki, Watson and Ernst 2013, in THRIVING library, SY-02). They demolished arnica, and their own hawthorn review was overturned within a year. A few extracts have reasonable support for a few uses, and most herbal claims have never been tested well enough to say.

The dose-transfer objection, which is the strongest, is set out in section 7. A healer following the traditional tea dose is not administering the thing that was tested, and the grade must not migrate across that gap.

The regulatory-capture objection. Traditional-use registration was a political compromise that kept products on the market. The rose hip meta-analysis pooled three trials all funded by one manufacturer (Christensen and others 2008), Ried's garlic pools include his own trials of a commercial extract, and the horse chestnut, St John's wort and hawthorn trials were largely run by the companies selling the extracts. An independent replication is worth more than another positive trial, and for hawthorn it was negative.

The harm-by-delay objection. Among patients with curable cancers who chose alternative medicine alone, the risk of death was 2.5 times higher and five-year survival 54.7 against 78.3 per cent (Johnson and others 2018, in THRIVING library, SY-02). The counter, which SY-02 makes and this report accepts, is that the argument assumes a hospital exists, so after the Fall it changes target rather than vanishing. What a herbal remedy now delays is oral rehydration, wound irrigation, draining an abscess, splinting a fracture, and the decision to stop treating and start comforting.

What survives. Six plants with grade A or B for at least one use. Safe dose ranges for about thirty more, from a regulator that reviewed thirty years of use for safety, which is the question a village needs answered. A list of the things that kill. A demulcent, an astringent, a carminative and a wound wash that are cheap, growable and harmless. That is a real pharmacopoeia, and a much smaller one than the herbals promise.

14. Ten-line summary

1. Six of these forty carry well-established use in the EU register: St John's wort, willow bark, horse chestnut, ivy leaf, valerian and linseed. The rest is traditional use, which attests safety and not efficacy.
2. The strongest single result is St John's wort in mild to moderate depression, 29 trials and 5,489 patients, response rate ratio 1.28 to 1.87, and the same plant has the worst interaction profile in the book.
3. Hawthorn's heart failure benefit did not survive SPICE (2,681 patients) and HERB-CHF (120). Treat it as a comfort measure for palpitations.
4. Valerian improves what people say about their sleep and not the time they take to fall asleep, and needs two to four weeks to do even that.
5. Comfrey ointment beat placebo and matched diclofenac gel for ankle sprain. Comfrey by mouth causes hepatic veno-occlusive disease and must never be swallowed.
6. Yarrow's haemostatic reputation rests on twelve rats. For bleeding, use pressure.
7. The tannin astringents work on stool consistency, not on fluid loss, which is what kills. Rehydration comes first, every time.
8. Four hedgerow confusions have killed documented Europeans: foxglove for comfrey, autumn crocus for wild garlic, hemlock for the edible umbellifers, yew for pine.
9. Every grade A result belongs to a standardised extract, and willow bark alone varies tenfold in salicin. A grade does not travel from the trial to the garden.
10. The first plants a village of 300 should grow are not the famous ones. They are marshmallow, chamomile, thyme, garlic and linseed.

15. Open questions

- Does any traditional tea reproduce the effect of the extract that was tested? For willow, St John's wort and horse chestnut this has never been tested head to head, and it is the most answerable question a district infirmary could take on.
- Does yarrow do anything to bleeding in a human? One randomised comparison of a yarrow compress against a plain wet compress would settle a 2,000-year-old claim.
- What is the real pyrrolizidine exposure from comfrey ointment on intact skin? A 2023 review argues that evidence of low dermal permeability calls the restriction into question, which could run either way.
- What are the salicylates in meadowsweet in milligrams per gram of dried flower? I found only the share of salicylates in the essential oil at around 70 per cent and a European Pharmacopoeia minimum of 1 ml/kg of oil, which does not convert.
- Was the 1983 California elderberry outbreak cyanide at all? The 2021 review says it was implicated then disproven, and the primary CDC bulletin was not retrieved.
- Does shepherd's purse do anything for menstrual or postpartum bleeding? The registered Iranian trials had no published results at the time of searching.
- How much do drying and storage degrade these plants over a European winter? This decides whether a village is dosing in March what it weighed in September.

16. Sources to read in full

1. The EMA HMPC monograph collection for the plants here. Free, and the only place a lay healer gets a dose range a regulator has examined. Start with chamomile, marshmallow, willow, thyme and comfrey.
2. Linde K, Berner MM, Kriston L (2008), St John's wort for major depression, Cochrane. The best single piece of evidence in the European herbal.
3. Pittler MH, Ernst E (2012), Horse chestnut seed extract for chronic venous insufficiency, Cochrane.
4. Holubarsch CJF and others (2008), the SPICE trial, European Journal of Heart Failure 10:1255-1263, read beside the 2008 Cochrane hawthorn review to watch an evidence base reverse.

5. Allen DE, Hatfield G (2004), Medicinal Plants in Folk Tradition. Over 400 species from more than 1,000 manuscript volumes of the Irish Folklore Commission. What people did, not what the herbals printed.
6. Barnes J, Anderson LA, Phillipson JD (2007), Herbal Medicines, 3rd edition, on constituents, interactions and documented harms.
7. Kakar F and others (2010), on the Afghan pyrrolizidine epidemics.
8. The ANSES alerts on autumn crocus and wild garlic (2020, 2022), the best teaching case for identification.

17. At the bedside after the Fall

A household. Five plants and a kettle: chamomile, thyme, marshmallow or linseed, garlic and plantain. All are grown in a bed or picked at the door, none can poison anyone at tea doses, and between them they cover gut cramp, sore throat, cough, mouth ulcers, minor wounds and the daily seasoning that keeps blood pressure down. It needs one more thing, a written rule on the wall: no comfrey by mouth, no elder but flower and cooked fruit, no herb in the first three months of a pregnancy. The first failure to expect is identification in the second year, when the person who learned the plants from a living teacher dies or moves and the next works from a drawing.

A village of 300. A garden, a healer and a book. The garden is Protocol 1. The healer needs a balance weighing to the gram, fixed preparations written down, and a register with a line per patient. The village needs a standing refusal list: comfrey by mouth, wormwood or sage past two weeks, any herb for a woman bleeding after birth, any herb for a child under two, any flushing leaf for someone already dry. It starts with seed, a teacher and somebody willing to write down failures. The first failure to expect is the register, which within a year will hold only the cases that got better.

A district of 3,000. The capacity to compare. Two preparations allocated by lot, with the outcome recorded by somebody who does not know which arm the patient was in, is within reach of a careful nurse and a paper notebook, and it is the only way these grades get revised instead of inherited. It needs a poisons record, so that the same misidentification in three villages is seen as a pattern, and a seed bank. The first failure to expect is that the district will want to grow the famous plants, and the famous plants are not the useful ones.

18. Protocols

Protocol 1. The garden for a village of 300

Bed areas are for 300 people for a year, my inference from the daily doses above and not a figure from a source [VERIFY].

- ☐ **First bed, 20 m2, demulcents.** Marshmallow (*Althaea officinalis*), root lifted in the second autumn, and linseed (*Linum usitatissimum*).
- ☐ **Second bed, 20 m2, carminatives.** Chamomile (*Matricaria chamomilla*), peppermint (*Mentha* x *piperita*), lemon balm (*Melissa officinalis*), fennel (*Foeniculum vulgare*). Confine the mint.
- ☐ **Third bed, 15 m2, respiratory and antiseptic.** Thyme (*Thymus vulgaris*), sage (*Salvia officinalis*), garlic (*Allium sativum*) in its own rotation.
- ☐ **Fourth bed, 15 m2, wound and skin.** Calendula (*Calendula officinalis*), yarrow (*Achillea millefolium*), plantain (*Plantago lanceolata*).
- ☐ **Hedge and margin, gathered not grown.** Elder, hawthorn, willow, oak, linden, rosehip, bramble, nettle, agrimony, in a protected stand with a gathering calendar.
- ☐ **Controlled plot, fenced and labelled.** Comfrey, wormwood, frangula, horse chestnut, held by the dispensary.
- ☐ **Not grown at all:** foxglove, autumn crocus, hemlock, aconite, yew. Where they grow wild, mark and teach them rather than pull them. A village that has forgotten what foxglove looks like is in more danger than one that lives beside it.

Protocol 2. Infusion, the standard tea

- ☐ Weigh the dried comminuted herb. Default 2 g per cup unless the entry says otherwise, tolerance plus or minus 0.5 g.
- ☐ Pour 150 ml of water at a rolling boil over it, covered, because the aromatics leave in the steam.
- ☐ Steep 10 minutes, 15 for fennel. Tolerance plus or minus 3 minutes.
- ☐ Strain through close cloth, twice for mullein and rosehip, whose hairs irritate the throat.
- ☐ Drink warm, three to four times daily. Discard any infusion over 12 hours old, because a cold herbal tea is a bacterial culture.

Protocol 3. Decoction, for bark, root and dried fruit

- ☐ Weigh 3 to 4 g of comminuted bark or root per 200 to 250 ml, the EMA figure for willow, oak and dandelion.
- ☐ Cover with cold water, boil, simmer covered 15 minutes, horsetail 5 to 15. Tolerance plus or minus 3 minutes.
- ☐ Stand off the heat, covered, a further 15 minutes, then strain and make up to the starting volume with boiled water.
- ☐ Willow bark decoction is taken warm and freshly made, after meals, three times daily, no more than four weeks.

Protocol 4. Cold macerate, for marshmallow and the mucilages

- ☐ Weigh 0.5 to 3 g of comminuted marshmallow root for an adult, 0.5 to 1.0 g at three to five, 0.5 to 1.5 g at six to eleven.
- ☐ Put it in 150 ml of **cold** water. Do not heat. Heat extracts starch and leaves the mucilage behind.
- ☐ Stand 30 to 90 minutes, stirring occasionally. Longer is better.
- ☐ Strain. The liquid should be visibly slippery. If not, the root was old or the water was warm.
- ☐ Warm to blood heat before drinking if wanted, but do not boil. Maximum 15 g of root a day, and an hour's gap from any other medicine.

Protocol 5. Wound wash and compress

- ☐ Make an infusion at the monograph's external strength: chamomile 3 to 10 g/100 ml, calendula 1 to 2 g/150 ml, yarrow 3 to 4 g/250 ml, horsetail decoction 10 g/litre.
- ☐ Use water boiled and cooled under cover. The wash must be cleaner than the wound.
- ☐ Cool to blood heat, about 37 degrees, tolerance plus or minus 5 degrees, tested on the inside of the wrist, and strain through a boiled cloth.
- ☐ Soak the dressing, apply, remove after 30 to 60 minutes. Make fresh every time and never keep a wound wash overnight.
- ☐ Stop if the wound shows spreading redness, swelling, heat or pus. That is an infection, and it needs irrigation and drainage, not a herb (THRIVING library, WO-02).

Protocol 6. Salve, fat and beeswax

- ☐ Use 1 part beeswax to 4 parts oil by weight, 1 to 3 for firm, 1 to 5 for soft. The 1 to 4 figure matches the old United States Pharmacopoeia simple ointment of 200 g yellow wax to 800 g lard, and the older Latin olive oil and white wax formula at 5 to 2 gives about 28 per cent wax. No current pharmacopoeial beeswax and olive oil monograph was found.
- ☐ Infuse the dried herb in the oil at 60 to 70 degrees for two to three hours without letting it smoke, then strain. Dried herb only, because fresh herb carries water and the salve will mould.
- ☐ Melt the beeswax over gentle heat, then add the warm infused oil, not the other way round.
- ☐ Pour into clean dry jars and let it set undisturbed. Test a batch on the back of a hand. Too hard, add oil. Too soft, add wax.

☐ Label with plant, date and ratio, because an unlabelled salve is a future poisoning. Keep comfrey salve apart, labelled external only and ten days.

Protocol 7. Gargle, mouthwash and poultice

☐ **Gargle or mouthwash.** Infuse at the monograph's oral strength: sage 2.5 g/100 ml, chamomile 1 to 5 g/100 ml, agrimony 1.5 g/150 ml, oak bark 20 g per litre. Cool to warm, gargle 30 seconds, spit it out, three times daily. Spitting is why a sage gargle is safe when the same strength drunk is capped at two weeks.
☐ **Poultice.** Bruise or grind the herb, or mix 2 to 3 tablespoons of ground linseed with just enough boiling water to make a stiff paste. Spread 5 to 10 mm thick on clean cloth, never directly on skin.
☐ Apply at blood heat, 37 degrees, tolerance plus or minus 5 degrees, tested on the wrist. A poultice hot enough to sting will burn an unconscious or diabetic patient.
☐ Leave 20 to 30 minutes, renew up to three times a day, never on broken skin with comfrey or arnica. ## 19. Numbers to carry

1. **Two grams in one cup.** The default single tea dose for a dried European medicinal herb in 150 ml, three to four times a day. Most monograph ranges straddle it.
2. **Three, seven, fourteen, twenty-eight.** Days before you stop and think again: diarrhoea, a cold, a digestive or nervine, and willow, nettle or meadowsweet.
3. **Ten days for comfrey**, external only, intact skin only, never under eighteen.
4. **Two, four, twelve, eighteen.** Ivy is forbidden under two, peppermint and fennel under four, most of this report under twelve, comfrey, wormwood, sage and willow under eighteen.
5. **Tenfold.** The range of salicin in willow bark, 1.5 to 15 per cent, and the honest size of your dose uncertainty with any gathered plant.
6. **Twenty-nine trials and 5,489 patients.** The St John's wort evidence base, the largest in the European herbal.
7. **2,681 against 120.** SPICE and HERB-CHF, the two trials that took hawthorn out of heart failure. Both null.
8. **Two deaths in 28 cases.** The French autumn crocus toll for 2020 to 2022.
9. **Six milligrams.** The HMPC daily limit for thujone, with a two-week cap on oral sage.
10. **Thirty-seven degrees.** The temperature of a wound wash or poultice.

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