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From Bellyaches to Bruises: The Healing Powers of Wormwood

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Figure 1: Wormwood. Photograph by Steven Foster. Reproduced under license.

Latin Name: *Artemisia absinthium L.*

Taxonomic Notes: Family: Asteraceae (formerly Compositae)

History

Wormwood is a powerful herb with a long and interesting history of use. Wormwood's reputation as an anthelmintic and parasiticide stretches back to ancient times and has been verified using high performance liquid chromatography (HPLC) of pottery jars from Egypt[1]. It was also mentioned in *The Papyrus Ebers* in formulas "to drive out pains in the head" and to "heal diseased toes"[2]. In more recent times, wormwood has been most often associated with the alcoholic beverages, absinthe and vermouth. In fact, the name vermouth comes from the German word for wormwood, *wermut*. Some other common names include absinthium, absinthe, green ginger, and old woman. Wormwood has an extremely bitter taste due to the volatile oil it contains, which

[1] McGoverna, P., Mirzoian, A., & Halla, G. (2009). Ofer Bar-Yosef (Ed). Ancient Egyptian Herbal Wines. Proceedings of the National Academy of Sciences.
[2] Bryan, C. (1930). *The Papyrus Ebers.* London, England: Geoffrey Bles.

consists of absinthol (also known as thujone), thujol alcohol, and iso-valeric acid. However, there is more behind this powerful herb than concocting spirits. It is one of the most quoted herbs in *The Chilandar Medical Codex*: the most significant and best-preserved medieval Serbian manuscript, which contains documents on European medical science from the 12-15th centuries[3]. Wormwood has a number of therapeutic and medicinal uses, including anesthetic, anticancer, and even antivenom.

Identifying Characteristics

This perennial herb is generally found cultivated, but is occasionally seen naturalized throughout North America. With many branched, firm, leafy stems, wormwood is sometimes leafy at the base and reaches about 3-ft. high. The leaves are feathery with pointed tips and covered in fine, whitish hairs, perhaps leading to the reason why it is sometimes referred to as “old woman.” It produces small, pendulous flowers with a greenish-yellow tint. Unlike the majority of the plants in this family, the ripe fruits are not crowned by a tuft of hairs. The leaves and flowers are extremely bitter, but the root is warm and aromatic.

Collection and Cultivation

To grow wormwood, try to find a shady spot and make sure to cut it back each year to prevent the plant from becoming spindly. The woody and very fibrous roots can be easily divided in the fall. It’s best to gather the flowering tops during the late summer, before the flowers are past their best. Dry quickly in the shade to retain the aromatic and volatile properties and store in an airtight, dark container like a repurposed coffee tin. The whole herb, flowers, and essential oil (administered topically only) all possess medicinal value.

3 Jarić, S., Mitrović, M., Djurdjević, L., Kostić, O., Gajić, G., Pavlović, D., et al.(2011). Phytotherapy in medieval Serbian medicine according to the pharmacological manuscripts of the *Chilandar Medical*

Active Constituents

Thujone, a constituent of the volatile oil contained in wormwood and the basis of the liqueur absinthe, should not be taken lightly. It can be neurotoxic, and products containing thujone should be used with caution. Historically, it was believed that the misuse of absinthe resulted in a clinical condition called absinthis, and it was banned in many countries.

However, current research has been able to show that the concentrations of thujone present in absinthe created prior to the ban (circa 1910) were not sufficient to create these effects. Recently, it has also been shown that the symptoms of absinthis were actually due to the chronic overconsumption of alcohol, which had become an increased social problem at that time[4]. Because of this new information, wormwood-flavored alcoholic beverages have been reinstated in several countries on the condition that thujone levels meet established safety standards[5]. In the United States, however, all food products containing wormwood must be thujone-free[6].

Even though wormwood may not be the culprit behind absinthis, thujone does depress the central medullary part of the brain, which is the area concerned with pain and anxiety. Thujone can also inhibit GABA receptor activation, causing brain neurons to fire easier, leading to muscle spasms and convulsions[7]. The α-thujone isomer is said to be several times more toxic than the β-isomer.

There are six established chemotypes of *A. absinthium* in Europe. There are three "pure" chemotypes—(a) (Z)-6,7-epoxyocimene, (b) sabinyl acetate, and (c) β-thujone—and there are three "mixed" chemotypes—(a)

4 Padosch, S.A., Lachenmeier, D.W., & Kröner, L.U. (2006). Absinthism: a fictitious 19th century syndrome with present impact. *Subst Abuse Treat Prev Policy,* 10(1):14.

5 Lachenmeier, D. & Uebelacker, M. (2010). Risk assessment of thujone in foods and medicines containing sage and wormwood – Evidence for a need of regulatory changes? *Regulatory Toxicology and Pharmacology,* 58(3):437-443.

6 http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=172.510 accessed 9/15/1

7 Höld, K.M., Sirisoma, N.S., Ikeda, T., Narahashi, T., & Casida, J.E. (2000). Alpha-thujone (the active component of absinthe): gamma-aminobutyric acid type A receptor modulation and metabolic detoxification. *Proc Natl Acad Sci U.S.A.*, 97(8):3826-31.

β-thujone/(Z)-6,7-epoxyocimene, (b) β-thujone/sabinyl acetate, and (c) (Z)-6,7-epoxyocimene/chrysanthenyl acetate/sabinyl acetate[8].

However, just like a fine wine, the constituent profile of *A. absinthium* essential oil can vary country-by-country, and even within the same country of origin, as seen in the following chart:

Origin	Primary constituent	Amount (%)
Ethiopia	camphor	3.7[9]
Turkey	chamazulene	17.8[1011]
Canada	β -mycrene	10.8[12]
Iran	β-pinene	23.8[13]
Canada	Trans-sabinyl acetate	26.4[14]
Canada	β thujone	10.1[15]
Iran	β-thujone	18.6[16]

As Master Herbalists and Registered Aromatherapists know, just because something is all-natural, that does not necessarily mean it's non-toxic. A dose of wormwood tincture

8 Sharopov, F., Sulaimonova, V., & Setzer, W. (2012). Composition of the Essential oil of *Artemisia absinthium* fromTajikistan. Rec. Nat. Prod., 6(2):127-134.

9 Nibret, E. & Wink, M. (2010). Volatile components of four Ethiopian Artemisia species extracts and their in vitro antitrypanosomal and cytotoxic activities. *Phytomedicine,* 17:369-373.

10 Kordali, S., Cakir, A., Mavi, A., Kilic H., & Yildirin, A. (2005). Screening of chemical composition and antifungal and antioxidant activities of the essential oils from three Turkish Artemisia species. *J. Agris. Food Chem.,* 53:1408-1416.

11 Kordali, S., Kotan, R., Mavi A., Cakir A., Ala A., & Yildrin, A. (2005). Determination of the chemical composition and antioxidant activity of the essential oil of *Artemisia drancunculus* and of the antifungal and antibacterial activities of Turkish *Artemisia absinthium*, *A. drancunculus*, *A. santonicum,* and *Artemisia spicigera* essential oils. *J. Agric. Food Chem.*, 53:9452-9458.

12 Lopez-Lutz, D., Alviano, D.S., Alviano, C.S., & Kolodziejczyk, P.P. (2008). Screening of chemical composition, antimicrobial and anti-oxidant activities of Artemisia essential oils. *Phytochemistry,* 69: 1732-1738.

13 Rezaeinodehl, A. & Khangholi, S. (2008). Chemical composition of the essential oil of *Artemisia absinthium* growing wild in Iran. *Pak. J. Biol. Sci.,* 11:946-949.

14 Ibid.

15 Ibid.

16 Höld, K.M., Sirisoma, N.S., Ikeda, T., Narahashi, T., & Casida, J.E. (2000). Alpha-thujone (the active component of absinthe): gamma-aminobutyric acid type A receptor modulation and metabolic detoxification. *Proc Natl Acad Sci U.S.A.*, 97(8):3826-31.

as small as **3 teaspoons** can cause **coma and death** in an adult! Wormwood has a low therapeutic margin, meaning the dosage variation between toxicity and non-toxicity is very narrow. Therefore, using more than the recommended daily dose, long-term use or consumption of the herb, or even excessive topical use of the essential oil, is not recommended. Although a small dose may be helpful, the smallest increase could be harmful. Wormwood should always be used with care and attention to both dosage and duration.

With wormwood, the extraction method determines the constituent profile and therefore the therapeutic margin, specifically:

- The volatile essential oil is **extremely** potent, and consequently it should only be used as a topical application and only then with extreme care. **Never** use the essential oil orally.
- The thujone and absinthol are not as readily soluble in water as they are in alcohol. Consequently, when administering the tincture, pay close attention to dose and duration.
- Because the thujone and absinthol are not as readily soluble in water, infusions and decoctions have a higher therapeutic margin than the tincture, but must still be used with care.

Therapeutic Action

Anesthetic, anthelmintic (vermifuge), antibilious, anticancer, anti-inflammatory, antileukemic, antimalarial, antinociceptive, antioxidant, antiparasitic, antiseptic, antivenom, aromatic, bitter, cathartic, carminative, cholagogue, febrifuge, hepatic, hepatoprotective, nervine, sedative, stimulant, stomachic, and tonic

Medicinal Uses

There are a number of notable medicinal uses for wormwood. It can be administered as a fluid extract, infusion, essential oil, powder, and tincture. But, always check the

contraindications, such as pregnancy or nursing, and follow the dose and duration guidelines[17]. And as discussed earlier, the essential oil is extremely potent, and it should always be used with extreme care in all cases.

Anesthetic

Wormwood is effective for easing pain. The essential or infused oil provides relief as a topical liniment and local anesthetic. See some tips for supporting bruises, cuts, and scrapes below under "Administration." Remember, the essential oil should only be used as a topical application and with extreme care.

Antimalarial

Artemisia annua, a related species, also known as sweet wormwood is the only artemesia to contain the constituent artemisinin, which is currently one of the most promising and effective antimalarial compounds. It grows throughout Asia and Europe and has been used in China for fever and chills. It is cultivated in Africa for its antimalarial properties[18]. It has been found that administering an extract of the whole A. annua plant is more effective than artemisinin alone[19].

Antimicrobial

Following is a chart of the positive antimicrobial effects of *A. absinthium*. on several tested organisms:

17 McGuffin, M., Hobbs, C., Upton, R., & Goldberg, A. (Eds.). (1997). *American Herbal Products Association's Botanical Safety Handbook.* Boca Raton, FL: CRC Press, 15.

18 Abad, M., Bedoya, L., Apaza, L. & Bermejo, P. (2012). The Artemisia L. Genus: Areview of Bioactive Essential Oils. *Molecules,* 17:2542-2566.

19 Dried whole plant *Artemisia annua* as an antimalarial therapy. (2012) Dried whole plant *Artemisia annua* as an antimalarial therapy. *PLoS One,* 7(12):e52746.

Origin	Organism	Concentration
Turkey	*Fusarium oxyosporum*[20]	20µg/ml[21 22]
Turkey	*Aspergillus niger*[23]	600µg/disk[2425]
Serbia	*Escherichia coli*	50µg/ml[26]
Serbia	*Staphylococcus aureus*	50µg/ml[27]
Ethiopia	*Trypanosoma brucei*[28]	27.9µg/ml[29]

Anthelmintic/Antiparasitic

The name *wormwood* suggests its most common use as an anthelmintic, with a specific action on roundworms and pinworms. When a water-based preparation is combined with black walnut Juglans nigra L., it is an effective anthelmintic for children. Ensure the dosage and duration limits are carefully followed.

20 Clinical manifestations of opportunistic infections caused by Fusarium include cutaneous and subcutaneous infections, eye inflammation, osteomyelitis, and arthritis following traumatic implantation. http://www.mycology.adelaide.edu.au/Fungal_Descriptions/Hyphomycetes_%28hyaline%29/Fusarium/

21 Nibret, E. & Wink, M. (2010). Volatile components of four Ethiopian Artemisia species extracts and their in vitro antitrypanosomal and cytotoxic activities. *Phytomedicine*, 17:369-373.

22 Kordali, S., Cakir, A., Mavi, A., Kilic H., & Yildirin, A. (2005). Screening of chemical composition and antifungal and antioxidant activities of the essential oils from three Turkish Artemisia species. *J. Agris. Food Chem.*, 53:1408-1416.

23 Obstructive pulmonary disease http://www.ncbi.nlm.nih.gov/pubmed/2029950

24 Nibret, E. & Wink, M. (2010). Volatile components of four Ethiopian Artemisia species extracts and their in vitro antitrypanosomal and cytotoxic activities. *Phytomedicine*, 17:369-373.

25 Kordali, S., Cakir, A., Mavi, A., Kilic H., & Yildirin, A. (2005). Screening of chemical composition and antifungal and antioxidant activities of the essential oils from three Turkish Artemisia species. *J. Agris. Food Chem.*, 53:1408-1416.

26 Blagojevic, P., Radulovic, N., Palic, R., Stojanovic, G. (2006). Chemical composition of the essential oils of Serbian wild-growing *Artemisia absinthium* and *Artemisia vulgaris. J. Agric. Food. Chem.*, 54:4780-4789.

27 http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=172.510 accessed 9/15/13

28 A unicellular parasitic protozoa causing sleeping sickness

29 Sharopov, F., Sulaimonova, V., & Setzer, W. (2012). Composition of the Essential oil of *Artemisia absinthium* fromTajikistan. *Rec. Nat. Prod.*, 6(2):127-134.

Researchers in West Virginia, USA, tested six crude plant extracts against three adult trematode species *in vitro: Schistosoma mansoni*, *Fasciola hepatica*, and *Echinostoma caproni*. Trematodes are also called flukes and cause parasitic infections in humans; a commonly known one is schistosomiasis[30]. An estimated 200 million people in the tropical regions of the world have this infection[31]. The results of this study found that the ethanolic extracts of *A. annua, Asimina triloba*, and *A. absinthium*. were all effective against all three tested nematode infections in 16-23 hours at acceptably low doses, around 2mg/ml[32].

Interestingly, it's possible that wormwood can help combat the disease known as African Sleeping Sickness. In 2010 in Ethiopia, four Artemisia species were tested in vitro against bloodstream forms of *Trypanosoma brucei: A. absinthium*, *A. abyssinica*, *A. afra*, and *A. annua*. This parasite is passed to humans by the bite of the tsetse fly and causes trypanosomiasis (African Sleeping Sickness[33].) The most effective extract was from the aerial parts of *A. abyssinica*. The researchers felt the results warranted further studies to develop this protocol[34].

Antinociceptive

An animal study on mice found A. absinthium acidic extract to have topical antinociceptive actions comparable to those found in the control group given morphine. However, further human studies are needed to find correct safe dosing that will produce this[35].

30 Schistosomiasis, also known as bilharzia or snail fever, is second only to malaria as the most devastating parasitic disease in tropical countries. See: http://www.cartercenter.org/health/schistosomiasis/index.html accessed 10/08/13

31 See: http://emedicine.medscape.com/article/230112-overview accessed 9/15/13

32 Ferreira, J.F., Peaden, P., & Keiser, J. In vitro trematocidal effects of crude alcoholic extracts of *Artemisia annua, A. absinthium, Asimina triloba,* and *Fumaria officinalis*: trematocidal plant alcoholic extracts. *Parasitol Res*., 109(6):1585-92.

33 See: http://www.who.int/trypanosomiasis_african/en/ accessed 9/15/13

34 Nibret, E. & Wink, M. (2010). Volatile components of four Ethiopian Artemisia species extracts and their in vitro antitrypanosomal and cytotoxic activities. *Phytomedicine*, 17:369-373.

35 Shams, M., Zeraati, F., Araghchian, M., Sadeghzadeh, S., Torabian, S., & Razzaghi, K. (2011). Topical Anti-nociceptive Effect of Artemisia Absinthium Extract in Male Mice. *ISHS Acta Horticulturae*, 964: International Symposium on Medicinal and Aromatic Plants IMAPS2010 and History of Mayan Ethnopharmacology IMAPS2011.

Antioxidant

Getting sick of pomegranates? Wormwood extract could be a unique and effective tool to help boost your antioxidants and keep your skin (and even brain!) cells healthy. In 2011, the methanol extract of *A. absinthium* showed the following statistically significant antioxidant properties *in vitro:* superoxide anion, hydrogen peroxide, hydroxyl, and nitric oxide radical scavenging activities, and reducing power. *In vivo*, this same extract was able to protect rat brain cells from induced oxidative stress damage[36]. Another study in 2012 confirmed the antioxidant properties of *A. absinthium* using the methanolic extract. This study also found that using the methanolic extracts of *A. absinthium* and *Arnica montana* L. together provided higher antioxidant effects, especially against cell damage. The researchers recommended using this combination for skin disorders[37].

Antivenom

Many of us who live natural and holistic lives love to hike and be outside in nature. Any good outdoorsperson worth their salt knows to carry a snake-bite kit. It might not be long before those kits include wormwood extract. While this is a first reporting and requires more study, an interesting study performed both *in vitro* and *in vivo* with rats found that pre-treatment with methanolic extract of *A. absinthium* was able to have anti-inflammatory actions against injection of Montivipera xanthine (Ottoman viper) crude snake venom[38].

36 Bora, K.S. & Sharma, A. (2011). Evaluation of antioxidant and free-radical scavenging potential of *Artemisia absinthium. Pharm Biol.*, 49(12):1216-23.

37 Craciunescu, O., Constantin, D., Gaspar, A., Toma, L., Utoiu, E., & Moldovan, L. (2012). Evaluation of antioxidant and cytoprotective activities of *Arnica montana* L. and *Artemisia absinthium* L. ethanolic extracts. *Chemistry Central Journal,* 6:97.

38 Nalbantsoy, A., Erel, S.B., Köksal, C., Göçmen, B., Yıldız, M.Z., & Karabay Yavaşoğlu, N.Ü. (2013). Viper venom induced inflammation with *Montivipera xanthina* (Gray, 1849) and the anti-snake venom activities of *Artemisia absinthium* L. in rat. *Toxicon.*, 65:34-40.

Dental Medicine

A 2012 clinical study was conducted to evaluate the effectiveness of *A. absinthium* L. as a part of complex treatment of inflammatory periodontal disease[39]. Patients suffering from periodontitis were treated using standard ultrasonic periodontal therapy. In addition, the "treatment" group used 5% aqueous extract of *A. absinthium*, which was applied once per day for 20 minutes. A significant improvement in microcirculation in periodontal tissues and reduced inflammation was observed for the treatment group when compared with the control group after two weeks. These results indicate that extract of *A. absinthium* can be used as a part of complex treatment in the case of periodontitis[40].

Hepatoprotective

A 2012 animal study tested the protective activity of an aqueous extract of *A. absinthium* against induced liver damage in rats. Three doses (2.5, 5, and 10 ml/ kg) were given orally. The wormwood extract was able to protect against several biochemical changes that were seen as a result of the liver damage caused by the carbon tetrachloride (CCl4) injections. Hepatic lipid peroxidation (LPO) was kept from elevating, glutathione levels were maintained, and adenosine triphosphatase activity was kept up. Also, there was an overall improvement in bile flow and bile solids. Interestingly, the highest level of protection was seen at the lowest dose. This supports traditional dosing recommendations[41].

Inflammatory Bowel (Chrohn's Disease)

Wormwood might prove itself to be an extremely helpful herb in combatting Crohn's Disease, and it's possible it could even help Crohn's patients reduce their steroid

39 Inflammation in the tissues that surround and support the teeth

40 Krechina, E., & Belorukov, V. (2012). *Artemisia absinthium* l. in complex treatment of inflammatory periodontal disease. *Stomatologiia* (Mosk), 91(4):22-4.

41 Saxena, M. & Shukla, S. (2012). Reversal of carbon tetrachloride-induced hepatic injury by aqueous extract of *Artemisia absinthium* in Sprague-Dawley rats. *J Environ Pathol Toxicol Oncol.*, 31(4):325-34

regimens. A double-blind study conducted at Yale University in 2007 administered wormwood herbal preparation (3 x 500 mg/day for 10 weeks) to 20 patients with Crohn's disease who had been treated at least three weeks with prednisone for their symptoms. The patients were tapered off steroid medications during the course of the trial; a control group was administered a placebo and also tapered off steroids. During the study 18 patients (90% of experimental group) who received wormwood showed consistently improved symptoms in spite of tapering of steroids. After eight weeks, there was almost complete remission of symptoms in 13 (65%) patients in this same group as compared to none in the placebo group. This remission continued for the remainder of the observation period (20 weeks)[42]. A follow-up review of this protocol in 2010, however, questioned whether this protocol stayed within safe limits of thujone levels and warranted more research on this aspect[43].

Kidney Disease

According to the National Kidney and Urologic Diseases Information Clearinghouse, a service of the National Institute of Diabetes and Digestive and Kidney Diseases and National Institutes of Health, "IgA nephropathy is a kidney disorder that occurs when IgA-a protein that helps the body fight infections-settles in the kidneys. After many years, the IgA deposits may cause the kidneys to leak blood and sometimes protein in the urine"[44]. A 2010 pilot trial performed at University of Freiburg, Germany, gave patients in the experimental group supplements of 1.8 g/d of a thujone-free wormwood preparation for six months. These patients did not discontinue the treatments they were already on for IgA nephropathy. Protein levels in the patient's urine were decreased at the end of the six months and continued to stay decreased for another six months after wormwood supplementation stopped. Researchers felt these

42 Omer, B., Krebs, S., Omer, H., & Noor, T.O. (2007). Steroid-sparing effect of wormwood (*Artemisia absinthium*) in Crohn's disease: a double-blind placebo-controlled study. *Phytomedicine*, 14(2-3):87-95.

43 Lachenmeier, D. (2010). Wormwood (*Artemisia absinthium* L.)—A curious plant with both neurotoxic and neuroprotective properties? *Journal of Ethnopharmacology*, 131(1):224-227.

44 http://kidney.niddk.nih.gov/kudiseases/pubs/iganephropathy/ accessed 9/15/13

results were promising and warranted further study to put this treatment option into use[45].

Tonic

Wormwood can be our stomach's best friend, since is an effective tonic for the whole digestive system, stimulating the production of gastric juice and bile, and calming any tendency to spasm or cramp. The leaves are said to have antiseptic properties and they have a beneficial effect on the liver and gallbladder.

Wormwood leaves prepared as a tonic infusion have traditionally been used for anorexia, biliousness, bruises (topically), constipation, diarrhea, dyspepsia, fevers, flatulence, gout, jaundice, liver tonic, nervous conditions, neuralgia, pinworms, roundworms, sprains, and swellings.

Preparation and Dosage

Wormwood can be prepared as a fluid extract, infusion, essential oil, powder, and tincture. Remember, wormwood is a powerful herb, and it should be administrated in small and repeated doses because of its potent constituents and extremely bitter taste. When administering the tincture, be sure to pay close attention to the dose and duration or use topically only. Remember that a water preparation of wormwood has a higher therapeutic margin.

You can always spice it up to help with taste and potency; it's best to mix all preparations with an aromatic, corrective herb, such as cinnamon *Cinnamomum zeylanicum*, clove *Syzygium aromaticum*, ginger *Zingiber officinale*, fennel *Foeniculum vulgare*, or licorice *Glycyrrhiza glabra*.

45 Krebs, S., Omer, B., Omer, T.N., & Fliser, D. (2010). Wormwood (*Artemisia absinthium*) for poorly responsive early-stage IgA nephropathy: a pilot uncontrolled trial. *Am J Kidney Dis.*, 56(6):1095-9.

Adult: The following doses can all be used three times a day or more frequently if the dosage is reduced:

Dried herb: Do not exceed 1½ g dried herb in tea, two to three times daily

Fluid extract: 1-2 ml

Infusion: 3-6 T

Oil (topically only)

Powder: ½ t (in capsules)

Tincture: 2-4 ml

Administration

From bellyaches to bruises, wormwood can be an herb of many uses, so it's important to know when and how to administer it properly. Here are some suggestions:

- Use the infusion, fluid extract, or tincture to help with dyspepsia, flatulence, constipation, jaundice, gout, and nervous conditions.
- Use for pinworm or roundworm infections, prepare an infusion from the flowering tops or powder the dried flowering tops and fill the capsules with the powder.
- Use for bruises, sprains, swellings, and neuralgia, apply hot fomentations of the herb or use the essential oil as a liniment (see Formulae).

Formulae

Wormwood Liniment

Wormwood Artemisia absinthium essential oil: 2-4 drops

Cold pressed peanut, soy, or safflower oil: 4 T

Mix the essential oil with the base oil. Apply topically, using 1 t to 1 T of the blend up to three times daily.

Again, the liniment is great for someone with an active lifestyle, and is effective as a topical analgesic support for any bruises, swellings, and sprains.

Wormwood Elixir

Wormwood Artemisia absinthium infusion: 1 T

Chopped pumpkin Cucurbita pepo L. seeds: 2-4 T

Water: 1 cup

Honey: 2 T

Mix all the ingredients and simmer together until half of the original quantity remains.

Add honey to the strained mixture.

It's clear that wormwood is more than just the essential ingredient in certain spirits and wines. Used appropriately and with caution, you might find that this "old woman" is an essential key to your health and wellness routine.

About the Authors

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Dorene is a New Zealand-trained Naturopath and aromatherapy, herbalism, and holistic wellness expert with decades of experience. She founded the American College of Healthcare Sciences (ACHS) in 1978.

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