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Requested comment

- Information about 'MICROBIOTICUM' manufactured by INEKO bv (The Netherlands – Europe)

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What is 'MICROBIOTICUM'?

'Microbioticum' essentially is an alcoholic extract of plants. This extract is prepared following the Guidance of the GMP-practice (Good Manufacturing Practice).
This procedure allows the concentration of the active medicinally plant compounds in the alcoholic extract. Moreover, the alcoholic extract being a good preservative, prevents deterioration.

What does 'MICROBIOTICUM'?

It is wise to state that by combining several plants, the final effect is not always perfectly predictable. The reasons why are multiple but not always known.
However, 'MICROBIOTICUM' has proved on animals and humans to enhance substantially the immunological response to invaders from:

- microbiological
- viral

origin. In fact , the immunological system is most efficient to fight against viruses and bacteria. While antibiotics must compete with specific bacteria, the immunological system is body linked andmuch more efficient and without body-foreign side effects.
It is obvious that a remarkable boost up of the immunological system is a benefit in the fight against bacteria but also against viruses (AIDS, HIV, Herpes)

What is the composition of 'MICROBIOTICUM'?

Following plants are used in the preparation

- Allium sativum
- Echinacea purpurea
- Eleutherococcus
- Matricari chamomilla
- Peumus boldo
- Pau d'arco
- Triticum repens
- Viola tricolor

What is the therapeutic use of the different components of 'MICROBIOTICUM'?

The following therapeutical use can be attributed to the different plants:

Allium sativum

Allium sativum is known as 'GARLIC'
Garlic is taken orally to reduce high blood pressure, prevent heart disease and artherosclerosis, treat earaches, stimulate both the immune and circulatory systems and prevent cancer.

Other applications include treating diabetes, arthritis, colds and flu, fighting stress and fatigue and maintaining healthy liver function .

Various official monographs list garlic as being both antibacterial and antimycotic (suppresses the growth of certain fungi). Consequently garlic is administered to treat *Helicobacter pylori* infections, and to inhibit the growth of *Candida albicans*, particularly in cases of recurrent yeast infections.

Parasitic worms are also apparently susceptible to garlic. The World Health Organisation "Monographs on Selected Medicinal Plants" reports garlic has having been used to treat roundworm (*Ascaris strongyloides*) and hookworm (*Ancylostoma caninum* and *Necator americanus*) infestations, listing allicin as the active anthelmintic constituent.

The United States Department of Agriculture lists garlic as being a viricide on its Medicinal Plant Database.

The garlic bulb contains an amino acid derivative called alliin which is in fact odourless and contains no antibacterial properties. However when the garlic bulb is crushed or ground, alliin comes into contact with an enzyme (alliinase) that converts the alliin into allicin. Allicin is the reason for garlic's distinctive odour, and is a potent antibacterial agent.

Traditional Chinese medicine has used garlic since at least A.D. 510, and is still using it for amoebic and bacterial dysentery, tuberculosis, scalp ringworm and vaginal trichomoniasis.

Other folk medicine cultures have traditionally used garlic for treating colds and flu, fever, coughs, headache, hemorrhoids asthma, arterioscelrosis, low blood pressure, both hypoglycemia and hyperglycemia, cancer and as an aphrodisiac (amongst other things). Garlic has also been used to treat pinworms.

The antiparasitic nature of garlic is demonstrated in the uses to which it has been applied in folk medicines around the world. For example, it has been traditionally used to treat parasitic worms in such diverse cultures as East Asia, India, Italy, North America, Peru, Saudi Arabia, Tunisia and the West Indies. Traditional practitioners in Greece have long used garlic extracts to protect against amoebic infections (9).

Laboratory tests (both in test tubes and in animals) have demonstrated that fresh garlic has antimicrobial activities (including antibacterial, antiviral, antifungal, antiprotozoal, and antiparasitic).

Particular activity against *B. subtilis, E. coli, P. mirabilis, Salmonella typhi,* methicillin-resistant *Staph aureus, Staph faecalis, salmonella enteritidis,* and *V. cholerae* have been noted.

Bacteria shown to be susceptible to garlic in the test tube include species from *Staphylococcus, Escherichia, Proteus, Salmonella, Providencia, Citrobacter, Klebsiella, Hafnia, Aeromonas, Vibrio* and *Bacillus* genera. Human trials as well as in vitro studies have shown that garlic consumption is active against *Mycobacterium tuberculosis.*

An epidemiological study in China among 214 people from the Shandong province suggested that garlic consumption may have a protective effect against H. pylori infection and the development and progression of precancerous gastric lesions.

Fungi demonstrated to be susceptible to garlic in lab tests include the genera *Microsporum, Epidermophyton, Trichophyton, Rhodotorula, Torulopsis, Trichosporon, Cryptococcus neoformans,* and *Candida,* including *Candida albicans.* It is reported that garlic is more effective against pathogenic yeasts than nystatin, especially *Candida albicans.*

Essential garlic oils were active on *Entamoeba histolytica* in clinical trials, confirming its potential for antiamoebic activity.

Antiprotozoan activity has also been demonstrated in lab tests against *Paramecium caudatum.*

Garlic has also shown itself in lab tests to have several immune-enhancing effects.

Fresh garlic, garlic extracts, oil and oleoresin have been generally recognized as safe when consumed in amounts commonly found in food. Garlic has been used for medicinal purposes in clinical studies lasting up to 4 years without reports of significant toxicity. It is possibly unsafe when consumed in large amounts, with the American Herbal Products Association Botanical Safety Handbook claiming that high doses could be dangerous or even fatal for children. There are, however, no reported cases of significant adverse reactions or mortality in children associated with the ingestion of garlic.

There are no published reports of garlic adversely affecting pregnancy, although it would be wise to avoid consuming large amounts during these times. (Theoretically large amounts of garlic might act as an abortifacient causing uterine contractions.) There is a lack of reliable information dealing with the use of garlic while breastfeeding, but it has been generally accepted that consuming it in amounts commonly found in food

Echinacea purpurea

Echinacea is a plant that bears single pink or purple flowers from its tall stems, with a central cone that often appears purplish-brown in colour. This accounts for its alternate name in some cultures, the "Purple Cone Flower"

Although there are several species of the echinacea plant, only 3 are used for medicinal purposes (*Echinacea augustifolia, Echinacea pallida,* and *Echinacea purpurea*).

Echinacea is used for a range of benefits, including as an antiviral, an immune stimulant, and to relieve urinary tract infections and yeast-related disorders. Extracts from *Echinacea purpurea* add to the body's resistance to bacterial and viral infection and have shown indirect antiviral activity.

The success of echinacea as a supportive therapy for colds and other respiratory infections is well documented. This comes as no surprise, as echinacea is an immune stimulant, a fact established by numerous scientific studies. Some effects of echinacea include an increase of the number of white blood cells and spleen cells, elevations in body temperature and reproduction of T-helper cells.

Historically echinacea has been taken for septicemia, migraines, streptococcus infections, syphilis, typhoid, malaria and diptheria. Often echinacea is included with in combination with other herbs to treat or prevent colds and other upper respiratory infections.

Echinacea arrives to us from the tribal medicine of the North American Indians, and by the 19th Century had become the most widely used plant drug in the United States. It was used in various forms for many ailments throughout the Americas, including as an aphrodisiac, to relieve headache and stomach pains, improve appetite and ease nausea and fevers. Echinacea root was chewed to treat colds and sore throats. It is further listed as an antibacterial, candidicide and trichomonicide in James Duke's Handbook of Medicinal Herbs (13).

A total of 26 controlled clinical trials in Germany were conducted on the immunomodulatory activity of echinacea preparations prior to 1994. After reviewing the 34 test treatment groups, 22 were considered to have given results indicating echinacea's positive effects on the immune system, particularly with regard to upper respiratory infections.

Lab studies in mice have shown that arabino-galactins from Echinacea purpurea provide protection against certain test microorganisms. The test results showed a 100% preventative effect against lethal *Candida albicans* infections and “very good preventative effect” against lethal *Listeria* and *Leishmania* infections (14). Both *in vivo* and *in vitro* immunostimulant activity in mice has been documented for echinacea.

Echinacea is considered generally safe when taken orally for periods of no longer than 8 consecutive weeks of daily use. Due to the insufficient reliable evidence on the use of echinacea while pregnant or breastfeeding it cannot be recommended for use during these times.

Eleutherococcus

Famed as an energy tonic in China since ancient times, Siberian ginseng only gained recognition in the West in the 1950s, when a Russian scientist (I. I. Brekhman) reported its notable stress-repelling powers. Healthy men and women taking the herb were found to better endure physical strain, resist disease, and perform tests of mental sharpness.

Today, Westerners are perhaps most familiar with the plant's botanical cousin Panax ginseng, but Siberian ginseng's apparent ability to fight fatigue and alleviate myriad ailments has earned it an enthusiastic following. Many people use it the way traditional Chinese healers do--to reinforce the body's vital energy (what the Chinese call *qi).* Others take it to enhance memory and ward off colds and flu. In Russia, millions of people use the herb as a general tonic.

Also known as eleuthero, supplements of the herb are made from the dried root of *Eleutherococcus senticosus,* a plant indigenous to China, Japan, Korea, and Siberia.

Siberian ginseng contains remarkable compounds that favorably affect the adrenal glands, the small glands that rest atop the kidneys and secrete stress-fighting hormones. Taking the herb is believed to boost the body's capacity to handle physical stresses ranging from heat exposure to extreme exertion. Resistance to disease increases as well. So does one's overall energy level.

Prevent stress-related illnesses**.** Several studies have shown that Siberian ginseng can increase a person's resistance to physical stresses. In a series of landmark Russian studies in the 1960s, 2,100 healthy adults (19 to 72 years old) given Siberian ginseng were shown to better handle stressful conditions. Specifically, they experienced an increased ability to perform physical labor, withstand motion sickness, and work with speed and precision despite being surrounded by noise.

They could also proofread documents more accurately and more readily adapt to such physical stresses such as heat, high altitudes, and low-oxygen environments. Other research indicates that taking Siberian ginseng can heighten mental alertness and improve concentration.
Relieve chronic fatigue syndrome and fibromyalgia**.** Because Siberian ginseng bolsters the adrenal glands, it's worth trying to relieve the exhaustion and muscle pain associated with these energy-depleting conditions.
Combat fatigue and restore energy**.** Siberian ginseng is popular for invigorating and fortifying the body. It appears to boost energy levels in people with constant exhaustion. Those recovering from an illness or weary from a heavy work schedule may also benefit from its energy-boosting and immune-enhancing powers. For otherwise healthy individuals--even athletes--the story is a little different, however.

In one study, 20 highly trained distance runners given Siberian ginseng failed to outperform similarly conditioned runners given a placebo when both groups raced against each other on treadmills. Not only did the Siberian ginseng-taking runners run no faster, they didn't run for longer either.

Increase male and female fertility and reduce male impotence**.** By supporting healthy uterine function, Siberian ginseng may be useful in preventing female infertility. Males may experience an increased sperm count (rotate it with Panax ginseng for this purpose). Animal studies indicate that the herb can even boost testosterone levels and thus help reverse certain cases of male impotence.
Relieve menstrual disorders and menopausal symptoms**.** Siberian ginseng may positively affect hormone levels and tone the large uterine muscle. These properties make it potentially valuable for easing certain menstrual difficulties and menopausal symptoms.
Treat Alzheimer's disease**.** Siberian ginseng may increase mental alertness, particularly in the early stages of this progressive disorder. The herb's ability to boost the transmission of nerve impulses may also enhance memory.
Increase resistance to colds and flu**.** Historically, the Chinese have found Siberian ginseng to be effective in suppressing colds and flu. The herb's immune-enhancing powers may play a role. Interestingly, a Russian study of 13,000 auto workers who took Siberian ginseng one winter showed that participants developed 40% fewer respiratory tract infections than they had in previous winters.

Matricaria chamomilla

Since the beginning of civilization, humankind has been aware of the effects of scent on the body, mind, and emotion. Flowers were used to attract love, food, and protection. Fragrant plants were worn to heal the body. Not only are flowers fun to grow, lovely to look at, and wonderful to smell, but their essential oils provide us with a variety of therapeutic benefits. Following are some of the most commonly used essential oils from flowers, their uses, and their healing properties.

The chamomiles are herbaceous plants with daisy-like, yellow flowers. The essential oil is steam distilled from the flowers. It has a warm, fruity scent. Chamomile is a gentle healing oil. It is safe for children, but should not be used during pregnancy, as Chamomile is a Uterine Stimulant!

Simply inhaling the oil can help improve the appetite, dispel emotional distress, tension, and fear, free the mind from worry, and promote a peaceful sleep. Used as a massage or bath oil, Chamomile Essential Oil will reduce fluid retention, ease painful menstruation cramps, relieve muscular aches and pains, help painful arthritic joints, and relax the body. It is good for dry, sensitive, or red skin. Use for dermatitis, eczema, psoriasis, acne, rashes, and itching.

Matricaria chamomilla, commonly referred to as the chamomile plant, is a member of the Asteraceae (Aster family), and is native to Europe and Western Asia. It is an annual herb that has escaped to the wild and is now naturalized on almost every continent. It can now be found growing along fencerows, roadsides, and in sunny open fields from Southern Canada to Northern U.S. west to Minnesota . Chamomile is easily cultivated, and prefers full sun and a light, well-drained soil. Chamomile is really two different plants that are used in western herbalism. Roman Chamomile (*Anthemus nobilis*) is a perennial, low-growing plant with a slightly stronger fragrance than the other type, German Chamomile (*Matricaria recutita*).

Chamomile has been used as a medicinal plant for centuries. In the West, over a million cups of chamomile tea are consumed daily, primarily for its reported relaxation benefits.
Today, chamomile is the most widely used herb for relaxation in the western world (ermasherbs.com, 1998). The flowering tops of both *A. nobilis* and *M. recutita* are harvested and used in herbal remedies. Dried flowers of A. chamomilla are largely used to provide sedative as well as spasmolytic effects. Throughout history, chamomile has been (and still is) used in a variety of ways: healing baths, teas, poultices, air fresheners, hair rinse, cosmetics, insect repellents, wine flavoring, dyes, companion planting, potpourris, and landscaping. Chamomile is medically specific to be useful with all of the following: soothing, calming, sedative, relaxation, anti-inflammatory, tenseness, aching muscles, indigestion, acidity, hay fever, asthma, morning sickness, eczema, sore nipples, and exhaustion. Chamomile is known for its calming effect on smooth muscle tissue, and is still a popular remedy for nervous stomach, menstrual cramps, and other common problems related to stress. Used externally, it is also useful as a treatment against skin inflammation and hemorrhoids. Used as a mouthwash, it can relieve the pain of a toothache. *Matricaria chamomilla* is among several medicinal herbs that are popular in Hispanic folk medicine.

The active substances in chamomile belong to chemically different structural types. The largest group of medically important compounds forming the essential oils includes chamazulene, apignenin, bisbololoxides, and spathulenol. Flavonoids, coumarins, and mucilages found in the chamomile flowers also have pharmacological effects. Species of *M. chamomilla* contain compounds that possess significant pharmacological activity.

The pharmacological property examined in a fraction isolated from a methanolic extract of *M. chamomilla* was identified to be apigenin. Apigenin reduces the latency of picrotoxin-induced convulsions. Moreover, apigenin injected in rats reduced locomotor activity, but did not demonstrate anxiolytic, myorelaxant, or anticonvulsant activities. Those results seem to suggest that the inhibitory activity of apigenin onlocomotor behavior in rats cannot be ascribed to an interaction with GABA(A)-benzodiazepine receptor but to other neurotransmission systems.

Intragastric and parenteral administration of heteropolysaccharides of *M. chamomilla* is found to normalize developing of the immune system response upon air-cooling and enhance, but not normalize, this process upon immersion cooling. This effect is attributed to initiation of immunostimulating properties of macrocytes, activation of immunoregulation cells of peripheral blood, and increased sensitivity of effector cells to helper signals.

Chamomile has several other clinically proven effects. The flowers produce a compound called chamazulene, which is a remarkable anti-allergenic and is useful in the treatment of asthma and hay fever. Chamomile tea dosage is commonly studied for its effects. Chamomile flower tea is used as a sedative and is used to treat insomnia and many other nervous conditions when taken in larger doses as a strong tea (Jackson, 2000). Milder tea in just as large doses was proved to treat fevers, sore throats, aches and pains due to colds, flu, and allergies. Chamomile also has clinically proven effect when applied externally. The flowers can be made into a salve for use on hemorrhoids and wounds. When applied externally as a wash or compress, it can treat skin inflammations, sunburn, burns, and can also be added to baths for relaxing tired, achy muscles and feet, and softening the skin.

Scientists reported significant relief from burns, diaper rash, and serious leg ulcers using chamomile. They found that for burns or diaper rash, cool chamomile is most effective, as well as adding chamomile to bath water. Chamomile is also useful for soothing babies with upset stomach or colic and for helping them to sleep.

Chamomile exists in many folk remedies as well. One example is that the Egyptians dedicated chamomile to their sun god and valued it over all other herbs for its healing qualities. Due to its sedative and relaxing properties, chamomile was an ingredient in some love potions in the Middle Ages.

Side effects of chamomile are quite common. Since it is a member of the daisy family, anyone who is allergic to this family, including ragweed, should not use the chamomile herb. An 8 year-old boy who ingested a chamomile-tea infusion experienced a severe anaphylactic reaction. The patient suffered from hay fever and bronchial asthma caused by a variety of pollen grains. This severe reaction was developed after his first ingestion of chamomile tea. These findings suggest a Type I

IgE-mediated immunological mechanism as being responsible for the patient's anaphylactic symptoms and also suggest that the patient cross-reacted the pollens of *M. chamomilla* contained in the chamomile tea because he was previously sensitized to *Artemisia* pollen. People who have allergies to members of the Compositae may experience contact dermatitis or other allergic reactions when using chamomile and should be cautious when using this herb.

Matricaria chamomilla is a very common plant used for its medical attributes. It has been used for centuries and is still used today. It can be used to treat very unique disorders, as well as the common cold and other ailments that people come across on a daily basis. For these reasons, chamomile is an important medicinal plant.

Pau d'arco

Pau d'arco is the inner bark or heartwood of a tropical member of the bignonia family found in South America, including Brazil, Peru, and Argentina. Known in the herb trade as lapacho and taheebo, material sold as Pau d'arco in the American market may be from other Tabebuia species or from tropical trees in the verbena family.

In the Americas, Pau d'arco has a folk reputation as an anticancer, antibacterial, antiviral, and antifungal agent, especially for treating candida infections. Several Tabebuia species have long been used by South American indigenous groups as a cancer remedy. In Peru, Pau d'arco has been used to treat diabetes and as a blood purifier. It is often used in combination with other herbs. In the late 1960s, popular newspaper and magazine reports in Brazil led to widespread use in South America which prompted scientific research into its purported health benefits.

Pau d'arco has been studied for its antitumor, antiinflammatory, antibacterial, antifungal, and immunostimulant activities. Early results were promising. Immunostimulant action has been examined only in preliminary laboratory studies that did not involve living organisms. Research on anticancer activity was conducted in the late 1960s and early 1970s by the National Cancer Institute. Several chemicals known as quinones have been identified from the bark and heartwood; the primary component, lapachol, was admitted into clinical studies in its pure form but was withdrawn due to lack of substantial benefits and mild toxicity. Advocates of its use argue that the whole bark produces different effects, due to the combined action of dozens of chemicals, that cannot be expected from a single compound. Analyses of commercial products have found that many lack the known active constituents. Pau d'arco is, and is expected to remain, controversial. It is widely used by herbalists outside the United States to treat cancer; for viral infections such as colds, flu, and herpes; bacterial infections; fungal infections such as candida; inflammations of the nose and throat; and many other conditions.

Quinones are naturally occurring compounds in plants and animals. Two members of this family which are most familiar to us are Vitamin K and Co-Enzyme Q10. Over 20 such compounds have been isolated in the bark of the Pau D'Arco plant, the combination of which, is considered to be rare. Scientific studies have found that highly refined extracts or isolated chemicals are less effective than whole plant extracts. It is therefore quite possible that it is this rare combination which gives Pau D'Arco its unique medicinal properties. There is a wide array of disease-causing organisms against which the quinones of Pau D'Arco have been found effective. These include bacteria such as Staphylococcus aureus better known as Golden Staph. and those which cause anthrax, brucellosis, tuberculosis and dysentery.

Candida albicans is a yeast which is present to some degree in every individual and, kept in check, is reasonably harmless. However antibiotic use, oral contraceptives and poor dietary habits may deplete the population of Lactobacillus organisms in the intestines. When this happens, candida -- or thrush as it is better known -- proliferates causing many health problems. Complaints can range from those which are obvious and visible such as oral or vaginal thrush to allergies and poor immune function. Treatment with Pau D'Arco not only enhances the immune system but its role in reducing candida overgrowth has been firmly established. Used in conjunction with proper diet and quality Lactobacillus supplementation, Pau D'Arco has the potential to restore balance in situations where thrush is a problem.

Many of us are only too painfully aware that when a viral infection takes hold there is very little that can be done. Treatment generally is centered on relieving the symptoms while holistic practitioners concentrate on improving the immune system. The main reason viruses are so difficult to treat is that they invade and use body cells to sustain their existence. Viruses are freeloaders that without a host, become nonentities. Once they have invaded however, they are difficult to eradicate without also damaging the host cell. Studies have tested lapachol from Pau D'Arco and found it to inhibit various strains of virus including some types of influenza and herpes viruses and the Epstein-Barr virus. It has been suggested that a complex process which inhibits the enzymes which allow these viruses to take hold may be responsible for the action of Pau D'Arco extracts.

There are numerous accounts of the successful treatment of cancer patients with Pau D'Arco. There is one story of a medical doctor who had a brother dying of cancer in the Santo Andre Hospital in Sao Paulo, Brazil. After administering a brew of Pau D'Arco the pain was relieved and the patient rested soundly. After a month he was discharged from hospital with no trace of the cancer. Given the results of various experimental studies such stories could well be true. In fact this same hospital continued to use the herb as a therapeutic with great success. Many trials have used only the isolated constituent, lapachol which has resulted in nausea and vomiting when given in high doses and the trials have subsequently been halted. In a study done in 1981 in Brazil with nine cancer patients, pain was relieved and the size of the tumours was reduced in all patients. Three of these patients experienced complete remissions. Despite these impressive results and many personal testimonies, no long-term statistics have been documented and the exact mode of action still remains relatively unknown.

Like an efficient medicine kit this amazing plant has also proved to have anti-inflammatory activity. It has anticoagulant action which results in reduced blood clotting. Those at risk of stroke are often put on anti-coagulant medication or aspirin to keep blood fluid. One more constituent of Pau D'Arco worthy of mention is the flavonoid Quercetin. As with many of the other members of the bioflavonoid family, Quercetin is useful to strengthen capillaries and prevent bruising. Its antihistamine-like action may also make it useful for those with allergic conditions such as hayfever or itchy skin disorders.

Peumus boldo

Indigenous uses of boldo have been widely documented. Legend has it that the medicinal uses of the plant were discovered by chance: a Chilean shepherd noticed that his sheep were healthier, with fewer liver problems, when they grazed on native boldo plants growing in his fields. Since this discovery the plant has been used by the indigenous peoples of Chile for liver, bowel, and gallbladder troubles. It is also used in Chilean folk medicine as an anthelmintic against worms. In parts of Peru the leaves are used by indigenous tribes against liver diseases, to treat gallstones, and as a diuretic. Boldo is still used widely throughout Chile. For many years the fruit has been eaten as a spice, the wood has been used for charcoal, and the bark has been used in tanning hides. It commonly is used for liver, gallbladder, and bowel dysfunctions (such as hepatitis, constipation, flatulence, poor digestion, gallstones, and a lack of appetite). Boldo has also been used in Chile for insomnia, rheumatism, cystitis, colds, and earaches, and is considered a general tonic.

Boldo’s uses in other traditional medicine systems is well documented. Worldwide, the plant is used in homeopathy in the treatment of digestive disorders, as a laxative, choleretic, and diuretic, and for liver problems. The leaves are used against intestinal worms, and botanist James Duke reports its traditional use for such urogenital inflammations as gonorrhea and syphilis, as well as for gout, jaundice, dyspepsia, rheumatism, head colds, and earaches. In Brazilian herbal medicine systems, boldo is used for a variety of disorders including hepatitis, liver congestion, constipation, flatulence, dizziness, stomach and intestinal cramps and pain, gallstones, insomnia, rheumatism, and a lack of appetite. Throughout the rest of South America, boldo is used for gonorrhea and liver, gallbladder, and digestive complaints. Boldo is the subject of a German therapeutic monograph which allows the use (as an herbal drug) for mild gastrointestinal spasms and dyspeptic disorders. In Germany, boldo is considered choleretic, antispasmodic, and is employed for liver and gallbladder complaints, loss of appetite, gastric disorders, and to stimulate gastric secretions. It is used for similar purposes in other countries throughout Europe. In American herbal medicine systems, boldo is used to activate the secretion of saliva, bile flow and liver activity; it’s chiefly valued as a remedy for gallstones, liver problems, and gallbladder pain.

Boldo is rich in phytochemicals including alkaloids, monoterpenes, benzenoids, sesquiterpenes, and flavonols. At least 17 known alkaloids have been documented thus far, including several biologically active isoquinoline and aporphine alkaloids. Much of the biological activity of boldo has been attributed to an aporphine alkaloid called *boldine*. The choleretic activity of the plant has been attributed to this alkaloid. Boldine has also demonstrated diuretic, uric acid excretory, antipyretic, anti-inflammatory, and weak hypnotic effects in laboratory tests. In animal studies, boldine has been shown to stimulate digestion and, specifically, to stimulate the production of bile and its secretion from the gallbladder (and to stimulate the secretion of gastric juice). Two clinical studies conducted in 1998 again validated boldine's use in gastrointestinal disorders in animals and humans and demonstrated an antispasmodic effect.

In 2000, researchers documented the liver protective and antioxidant properties of boldine in a rat study with diabetic rats, surmising "boldine may attenuate the development of diabetes in rats and interfere with the role of oxidative stress, one of the pathogenesis of diabetes mellitus." An earlier study had reported boldine's liver protective actions, stating: "In view of its low toxicity, lack of effect on P450 activity, and strong inhibition of peroxidation of human liver microsomes, boldine may be valuable as an antioxidant and hepatoprotective agent." Another (2000) boldine study reported that it displayed strong cellular protective properties against chemically-induced hemolytic damage (it displayed an antioxidant effect in the blood). Boldine also has demonstrated anti-inflammatory activities *in vivo* as well as protected against colon damage and lowered inflammation against induced colitis and colon inflammation in animals. Recently (in 2002), boldine was cited to have an effect on the cardiovascular system. Researchers found that it increased coronary blood flow, depressed cardiac force and heart rate, and had a vasorelaxant effect. Boldine also has demonstrated (in two *in vitro* studies) to inhibit platelet aggregation. With so many studies on this important alkaloid, it is understandable that most European boldo products are standardized to the boldine content.

A clinical study was published in 1999 about the antimicrobial properties of boldo's essential oil. While the essential oil showed bactericidal and fungicidal properties against several tested organisms, it should be noted that the essential and volatile oils of boldo contain the compound asaridole in amounts up to 40%. Asaridole has anthelminthic properties, but is also a documented liver toxin—internal use of essential or volatile oil preparations of boldo is contraindicated. Boldine, too, has been reported to have a toxic effect in high dosages. In large quantities it causes cramps, convulsions and muscle paralysis, eventually leading to respiratory paralysis. It also has demonstrated a uterine relaxant effect in rats. In a 2000 study with rats, an extract of dry boldo leaves and the chemical boldine showed abortive and teratogenic action and lowered the blood levels of bilirubin, cholesterol, glucose, alanine aminotransferase (ALT), aspartate aminotransferase (AST), and urea. These researchers reported, however, that the long-term administration of the leaf extract and boldine did not cause histological modification over a period of 90 days.

Researchers verified indigenous uses of boldo leaves in the 1950s and 1960s and showed that leaf extracts had diuretic, stomachic, and cholagogue properties in animal studies. Although the digestive and choleretic properties largely are attributed to the phytochemical boldine, one study indicated that an alcohol extract of boldo leaves caused higher choleretic activity in rats than boldine alone. An ethanol extract of the leaf administered to mice was shown to have a liver protective effect, preventing liver damage due to chemical exposure. A recent human study demonstrated that boldo relaxes smooth muscle tissue and prolongs intestinal transit (which again validated its traditional uses for digestive functions). The antioxidant property of boldo leaves has also been documented; in rats, leaf extracts demonstrated *in vivo* anti-inflammatory activity. A U.S. monograph reported that boldo caused significant diuresis (it increased urine volume by 50%), which validated the plant's traditional use as a diuretic.

Centuries ago, boldo was a little-known plant growing in farmers' pastures in Chile. Today, huge fields of boldo are cultivated around the world to supply the market demand for a specific herbal remedy or herbal drug for gallstones and gallbladder inflammation, and for many types of liver, stomach, and digestive conditions.

Triticum repens

Couch grass (Triticum, U.S.P.) consists of the dried rhizome of *Agropyrum repens*, Beauvois (N.O. Gramineae), formerly known as *Triticum repens*, Linn., a weed abundant in Europe, N. Asia, Australasia, and America. Couch grass is official for use in the Australasian, Eastern, and North American Colonies. The rhizome should be gathered in the spring, deprived of its roots and dried.

The constituents of the rhizome are triticin (a carbohydrate resembling irisin), glucose, mucilage, mannite, and inosite. No starch is present and no definite active constituent has yet been discovered. Triticin yields laevulose on hydrolysis.

Couch grass is a demulcent diuretic, and is ,employed in the treatment of catarrhal diseases of the genito-urinary tract. It is given in the form of a decoction and a liquid extract.

Triticum is a useful remedy in the treatment of urinary infections such as cystitis, urethritis and prostatitis. Its demulcent properties soothe irritation and inflammation. It is also of value in the treatment of prostatitis, and may be used in kidney stones and gravel. Its has a healing action on the urinary mucosa, and is particularly effective for children's conditions and for helping to manage examples of tension in the urinary system such as enuresis and nervous incontinence. As a tonic diuretic, Triticum has been used with other herbs in the treatment of rheumatism.

The sugar mannitol present in large quantities in this herb, and is known as a standard 'osmotic diuretic', that is, it is absorbed whole from the gut and excreted largely by the kidney tubules. Its presence in the tubules means that extra water has to be retained in order to maintain osmotic pressure. The saponins and vanillin, also have diuretic

properties. Silica, present as 30% of the inorganic residue, justifies this herb's use in the treatment of slow-healing wounds and to strengthen the lungs and other tissues. The antibiotic substance help to limit infections in the urinary tubules and elsewhere.

In Europe quack grass roots were used until quite recently to make a popular drink to purify the blood. It had many uses in traditional medicine in many cultures, especially for kidney ailments.

The roots are still used by traditional peasants in South China and Hong Kong to make a herbal tonic tea.

The CRC Ethnobotany Desk Reference by Tim Johnson lists couch grass as an anthelmintic, aperient, astringent, demulcent, diuretic, emmenagogue, emollient, sedative, sudorific, and a tonic, used for treating bladder ailments, cancer, congestion, cystitis, depurative, dropsy, gastrointestinal catarrh, gonorrhea, gout, jaundice, kidney irritation, liver ailments, nephritis, orthopedic ailments, painful urination, pyelitis, rheumatic problems, rheumatoid ailments, sclerosis (pylorus), stomach ailments, tumor, urinary ailments, and urinary tract irritation.

Other references cite its use as an antibiotic, antilithic, antimicrobial, antiphlogistic, bladder infection, blood purifier, used to treat Bright's disease, bronchitis, calculi, catarrh, constipation, cystitis, demulcent, depurative, discutient, diuretic, emollient, eyes, female disorders, fevers, gallstones, gout, gravel, jaundice, kidney, lower back pain, pectoral, prostate (enlarged), rheumatism, skin diseases, stones, sudorific, syphilis, tonic, urinary infections.

AVOR N.V. security seal

Viola tricolor

Viola tricolor or Wild Pansy, also known as heart’s ease (or heartsease), was used as a medicine to soothe heart (as the site of emotions) conditions. It was used in magic rituals and love potions. On a more serious note, wild Pansy was used to relieve irritations and itch and to heal ulcers. It was also valued to treat milk scalp in newborn babies.

The root, leaves and seeds of these odoriferous plants are emetic in larger doses. Boullay (1828) found the whole plant of Viola tricolor to contain an acrid and poisonous principle which he called violine. It resembles emetine in its action, is a pale-yellow or white powder of bitter and acrid taste, more soluble in water than emetine, insoluble in ether, quite soluble in alcohol, and forming an insoluble compound with tannin solution. It also exists in other plants of this family, particularly in the rhizomes of the perennial, and especially the stemless species of violet. It is not present, however, in the pansy (see below). The root also contains starch, yellow coloring matter, gum, traces of volatile oil, etc. The flowers contain a blue coloring matter, turning green with alkalies. As to the odoriferous principle of the violet, it has not yet been definitely established whether it is identical with the synthetical violet perfume from orris root. found the leaves of Viola tricolor to contain a substance which, after boiling, yielded salicylic acid (also see Related Species, below). Boiling water extracts the virtues of these plants.

Nicolas Culpeper (1616-1654) used wild Pansy as a remedy for inflammation of the lungs and breasts and for scabs and itches. He considered its flowers to be cooling, emollient and cathartic.

David Hoffmann considers wild Pansy as having expectorant, diuretic and anti-inflammatory properties. He particularly recommends its use, internally as well as externally, for eczema and dermatitis.

Wild Pansy is a source of salicylic acid, a keratolytic molecule that facilitates desquamation and allows the elimination of dead skin and scabs in skin diseases. It also contains many antioxidant molecules like flavonoids (rutin, quercetin) and carotenoids (zeaxanthin, violaxanthin, etc.). These molecules reduce inflammation and oxidation, accelerating the healing of dermatitis.

Wild Pansy contains a unique molecule, violine, which is related to emetine. In internal use, this molecule is responsible for its laxative and depurative effects in the treatment of dermatitis. At high dosages, violine has an emetic effect.

The German Commission E acknowledges its benefits in cases of: mild seborrheic skin diseases, milk scalp in children.

The flowers and seeds of Viola as laxatives, rubbed up with sugar and water; the root is emeto-cathartic, but it is uncertain in its action. The odorous emanations from the flowers have caused faintness and giddiness, and in one case were supposed to have brought on apoplexy. The seeds have been recommended in uric acid gravel. Blue violet is mucilaginous, emollient, and slightly laxative; also antisyphilitic and useful, when combined with Corydalis formosa, in syphilis. Has been used in pectoral, nephritic and cutaneous affections, especially crusta lactea. The plant should be used when fresh, as drying destroys its active properties. Prof. Scudder says of it that "it stimulates waste and secretion, relieves nervous irritability, and improves nutrition".