



## WHAT IS GLYCERIN?

Glycerin, sometimes spelled glycerine, is a commercial product whose principal component is glycerin. The terms glycerin, glycerine, and glycerin are often used interchangeably in the literature.

Glycerin is one of the most versatile and valuable chemical substances known to man. It possesses a unique combination of physical and chemical properties that are utilized in myriad products. Glycerin has over 1,500 known end uses, including many applications as an ingredient or processing aid in cosmetics, toiletries, personal care, drugs, and *food products*, of which herbal fluidextracts are classified. In addition, glycerin is highly stable under typical storage conditions, compatible with many other chemical materials, virtually non-toxic and non-irritating in its varied uses, and has no known negative environmental effects. *[In other words, glycerin is for the most part... safe! We are of course referring to USP grade/Kosher certified vegetable glycerin when making this assertion. – CBN™]* A water clear, odorless, viscous liquid with a sweet taste, glycerin is derived from both natural and petrochemical feedstocks. It occurs in combined form (triglycerides) in all animal fats and vegetable oils and constitutes, on average, about 10 percent of these materials. Glycerin is obtained from fats and oils during soap and fatty acid production and by transesterification (an interchange of fatty acid groups with another alcohol). It is subsequently concentrated and purified prior to commercial sale. Synthetic glycerin is produced from petrochemical building blocks via several processing steps designed to achieve the desired concentration and high product quality. *[Used typically for pharmaceutical reagent work and pharmaceutical production, and highly technical applications, but NOT for food-grade use! – CBN™]* Glycerin, whether recovered from triglycerides or synthesized, is principally used as a highly refined and purified product, with a very high concentration of glycerin.

Glycerin, the main component of glycerin, has the chemical formula  $C_3H_5(OH)_3$ . It is a trihydric alcohol, possessing two primary and one secondary hydroxyl groups, which are its potential reaction sites and the basis for glycerin's versatility as a chemical raw material. For example, glycerin esters, the reaction products of glycerin with various fatty acids form an important class of derivatives that are extensively used in the food industry. The physical properties and characteristics of glycerin are as significant as its chemical properties for many applications. These qualities enable glycerin to be used as a humectant, plasticizer, emollient, thickener, solvent, dispersing medium, lubricant, sweetener, bodying agent, antifreeze and processing aid. It is not unusual for glycerin to contribute two or more features or attributes to a product or application. In all applications, whether as a reactant or as an additive, the virtual non-toxicity and overall safety of glycerin is always of significant benefit. Glycerin applications appear to be limited only by the imagination and creativity of the scientific and technical communities. *[It is this final statement of "imagination and creativity" that compelled L. Carl Robinson to invent the multi-step TincTract® process for manufacturing super saturate, highly concentrated, extremely consistent and great tasting herbal fluidextracts, using glycerin as the primary solvent medium. – CBN™]*

Most of the glycerin marketed today is manufactured to meet the stringent requirements of the United States Pharmacopeia (USP) and the Food Chemicals Codex (FCC). However, technical grades of glycerin that are not certified as USP or FCC are available. *[We only use the USP FCC grade glycerin. – CBN™]* Glycerin is used in many consumer products such as personal care preparations, cosmetics, pharmaceuticals and foods because of its contribution to product properties, stability and compatibility with a wide variety of chemicals, and relative non-toxicity. For these consumer-oriented applications, the quality and purity of the ingredients is crucially important. The use of USP and FCC- certified glycerin, versus technical grade glycerin, in consumer product applications ensures that the manufacturer has specified the glycerin quality and consistency required for these products. *[As previously stated, Cedar Bear Naturales® uses only USP grade/Kosher certified vegetable glycerin. – CBN™]*

Text is taken from 'The Soap & Detergent Association' website with inserted comments by CBN™ (i.e. *[..... – CBN™]*). We thank 'The Soap & Detergent Association' for their well written and easy to understand information.

## WHAT DOES 'USP' MEAN?

The abbreviation USP stands for United States Pharmacopeia, a document first published in 1820 by the Medical Society of New York State. Recognized as official by Congress in 1848, this document was used as a standard reference by physicians for prescribing medicines. Today, the USP includes chemical descriptions, identifying tests, and purity tests, primarily for active ingredients. All materials listed in the USP are considered drugs by law and subject to all the U.S. Food & Drug Administration requirements pertaining to drugs. Labeling a product or a substance as USP implies that it conforms to all the legal requirements of the FDA and that it was produced in accordance with the principles outlined in FDA's Good Manufacturing



Practices (GMP). A new edition of the USP is published every five years in the years ending in "0" and "5," with ongoing revisions and additions issued during the interim years.

Many other nations also have compiled an official national pharmacopeia, similar in scope and content to the USP. Currently, there is a collaborative international program to harmonize the glycerin monographs in the USP and in the European Pharmacopeia, which may later be expanded to include other nations.

## **Cedar Bear Naturales® (CBN™) Liquid Herbs - Totally 100% 'true' Alcohol-Free**

### **Glycerin versus Alcohol**

CBN™ products are a 'Premium' class of herbal products. Every step of the TincTract® process is totally alcohol-free. Alcohol is NEVER used anywhere in the process. The exclusive TincTract® process preserves all of the extracted water-soluble and alcohol/heat sensitive components such as aromatics, vitamins, enzymes and other important constituents, that are diminished, denatured, rendered inert or altered in alcohol based processes. These are proven scientific facts! These facts are also withheld from consumers by companies who process their herbal products with alcohol. Most surprising of all, many companies are not even aware of the intrinsically deleterious effects of alcohol on the herbs they process and sell.

All simple (diatomic) grain alcohols denature and render inert the therapeutic actions of an herb's aromatic constituents (excepting their antiseptic/bacteriostatic action). This includes the essential oils, glycosides, etc. of a plant. These essential oils and glycosides are major contributing factors to many herbs therapeutic value. The perfume/fragrance industry knows this and often requires that alcohol be used for denaturing of the essential oils used in their fragrances as part of preparing their scents for the marketplace so as their products maintain the scent/aroma quality, while being void of therapeutic implications (commonly known as 'emotional triggers') that could potentially cost them sales and market share.

Vitamins, enzymes, co-factors and other micronutrients are denatured and rendered inert (useless) when brought into contact with alcohol as well. This is due to alcohol's disinfecting, sterilizing and dissociating qualities. Important constituents and compounds may be removed by alcohol solutes, but to what end? Those constituents and compounds are now denatured and biologically inert and of no value in biological systems. These are all scientifically verified facts!

Alcohol is also implicated as being problematic for either causing or aggravating many health problems. Grain alcohol in any form is contraindicated for pregnant mothers (which includes pregnant pet's as well) and recovered alcoholics (who often 'trigger' even with so called, "alcohol-free" products that were actually processed with alcohol and then had the alcohol removed, though the 'energetic' signature for alcohol seems to remain). Alcohol not only denatures, renders inert and/or destroys many vitamins in herbs, it has been documented to destroy many nutrients in the digestive tract as well. (The same would apply to a gross ethyl alcohol extractive/tincturing component in finished non re-distilled liquid herbal products (as opposed to a said herbal tincture mixture further being distilled into a true 'liquor')), *[please see Appendix A to this presentation for more referenced details on the deleterious effects of straight grain (ethyl) alcohol's effect on nutrition, metabolism, etc.]*

Even though alcohol may be a great sterilizing agent (due to its disinfecting and dissociating nature) it renders useless so many constituents and nutrients that a pure ethyl grain alcohol-based product is actually very limited in its potential and therapeutic benefits, especially those nutritionally related, when compared to the broad benefits contained in a TincTract® brand processed liquid herbal glycerite.

This is not to say that an alcohol prepared herbal product doesn't have it's place. It's just that it is becoming more evident to those who use both types of preparations that a fair evaluation supports the premise that TincTract® brand glycerites are more versatile in their applications. In fact, over time as most health practitioners, herbalists and consumers use TincTract®



brand 'true' alcohol-free products they seldom use any other liquid preparation thereafter, especially alcohol prepared ones, so impressed are they with the versatility and efficacy of TincTract® brand glycerites.

So why is grain alcohol listed in the herbal texts and accepted in the industry at large as the 'preferred' extractive medium for liquid processing herbs? The answer lies in the early research and assumptions made by the botanically based eclectic physicians of the late 1800's and first two decades of the 1900's. These holistic physicians MD's and ND's who are legendary for their safe, sane and very effective doctoring also became very involved in the emerging pharmaceutical search for herbal based crude drug medicines. For the times they worked in their research and work was astounding and in many areas groundbreaking. Part of that early research involved determining what they felt would be the most universal and 'preferred' extractive medium for liquid processing of medicinal botanicals. In the end they settled on grain alcohol and made that the 'standard' for their trade – a premise that still prevails in the liquid herbal products industry at large today.

There was however three very important things that within the following 20 to 50 years of the Eclectic's work in this area would invalidate those early assumptions that grain alcohol was the preferred medium for fluid extraction of botanicals.

First, they did not have enzyme theory at the time to consider in the implications of their work, not only as processors of botanical products, but most importantly, relative to the effects of these liquid botanical preparations both therapeutically and nutritionally. Without this knowledge, they could not possibly have been aware of the 'biologically' active nature that enzymes and certain enzyme co-factors play in the therapeutic and nutritional efficacy of an herb, which alcohol intrinsically denatures, dissociates and renders inert.

Second, though they utilized glycerin in a number of their experiments, the Eclectics appear to have not been aware of its enormous versatility as an extractive solvent, and with the exception of decoction processing, largely utilized it in an alcohol-type manner (possibly due to the fact that chemically it is technically an alcohol, but a tri-atomic one, like comparing sugar (grain alcohol) to a complex polysaccharide carbohydrate (glycerin)). In other words, they didn't 'work' the glycerin beyond the critical limits naturally found with grain alcohol. Why this was done no one really knows. Even so, within 20 years of the Eclectics assumptions concerning alcohol versus glycerin, the food products industry and industrial manufacturing would reach the zenith of glycerin based research and conclude, through both industry and scientific research, that glycerin is not only the most versatile naturally occurring non-water based extractive medium yet discovered, but one of the safest as well. The key that the Eclectics had missed was not so much glycerin as an extractive medium (which they assumed was less versatile than grain alcohol) but 'how' glycerin is worked and used in the processes it is used with to bring out its versatility (similar to what L. Carl Robinson did when he invented the TincTract® process). So the Eclectics simply were not aware of glycerin being much more versatile and a better extractive medium for botanicals than grain alcohol could ever be, because they did not have access to research and facts to give them greater clarification, nor had they ventured further into their own original R&D to find out.

And thirdly, it was noted in the late 1960's/early 1970's and further observed in the 1980's by clinical aromatherapists that certain therapeutic benefits of essential oils and aromatic based compounds of a plant could be denatured and/or altered (often times dissociated into simpler inert compounds) when placed in contact with grain alcohol. Though the aroma quality remained, the therapeutic benefits were substantially reduced and/or rendered inert due to alcohol's action of taking extremely complex molecules and breaking them down into simpler component molecules. (Perfumers are aware of this due to the fact that they often spike a naturally derived aromatic blend of essential oils with a bit of alcohol to 'fix' it, or in this case, purposefully render it therapeutically inert.) This aspect of alcohol's effect on the aromatic constituents of a plant was totally unknown to the Eclectics.

The bottom line is that the status of grain alcohol being the 'preferred' extractive medium for herbs is not only outdated but no longer supported in either a scientific or intrinsic sense. For most of a century a premise, that was outdated within 20 years of its introduction, has been dogmatically held to while the facts show differently. Truth is, though more expensive, Glycerin is more versatile, safer and beneficial than alcohol is intrinsically capable of ever being.

Glycerin is listed in foods ingredients and industrial texts as possessing the greatest [naturally occurring] solvent powers known, exceeded only by water itself (only because water is able to take on the three states of matter). This means glycerin has greater solvent qualities than alcohol! The problem in the past has been that typical glycerite-extractive processes utilized



alcohol-type single step liquid extraction techniques for making liquid herbs and so were not all that much stronger or any more efficacious than alcohol based herbal products, – often being less so.

Then there is the ever present problem and reputation for which liquid herbal products at large are typically known for – bad taste!

Over 20 years ago L. Carl Robinson, who invented the TincTract® process, realized that to obtain the full solvent potential of glycerin as an extractive medium, it needs to be put through a series of passive and dynamic processes that are much more than a mere 'cold' tincture technique or a simple decoction process. The TincTract® process is a "Thinking Outside The Box" approach that challenges many hard-and-held-to industry 'standards' and dogmatically held to notions about alcohol-type dominated fluid extraction processes, and results in finished products that leave clinical herbalists, other herbal product companies, and the foods & beverage industry scratching their heads in wonderment.

Unlike alcohol, glycerin is not only a food ingredient in tens of thousands of food products, but is also listed as a nutritive – For both humans and animals! The nutritive qualities are astounding! Though it has caloric value, the calories are not 'simple' carbohydrate calories like sugar or alcohol, that blow through the body, cause blood sugar crashes, result in excess fat, and imbalance blood sugar levels. Instead, glycerin is processed very slowly in the body, utilizing a special enzyme pathway in the liver (called the 'gluco-neogenic cycle') that doesn't stress or damage liver function or tissues, and in fact, has a vivifying effect on the liver as well as not stressing the pancreas or thyroid. Alcohol cannot claim any of these virtues.

Unlike alcohol – that has a potentially deleterious effect on the liver (and cannot be metabolized by animals at all), glycerin possesses detoxifying attributes that are non-stimulating (especially important for challenged livers). Dr. Edward Shook, the eminent physician and biochemist who specialized in liquid herbal glycerites, taught that glycerin possesses the distinct quality of aiding in the removal of sequestered toxins from the body's tissues, especially the liver's tissues, a quality not shared by alcohol. This is especially important in today's environmentally polluted and chemically laden world.

Unlike alcohol, the glycemic index for glycerin is very low. (Alcohol possesses one of the highest glycemic indexes known!) This is especially important for individuals experiencing diabetic, hypoglycemic or hyperinsulinemia problems, as well as those on special 'low carb' diets. In fact, though the FDA requires that glycerin be listed on a label as a 'carbohydrate' source of calories (due to the National Academies of Science only recognizing fats, proteins and carbohydrates as sole sources of calories) it is also allowed for glycerin to be listed as having a '0' Net Carb Count, meaning that it does not act the same way in the body as a 'true carbohydrate does. Therefore, it really is not a 'true' carbohydrate.

For children, who don't have well enough developed enzyme systems to convert or metabolize alcohol into sugar, glycerin is a perfect ingredient for liquid herbal products for children, and it makes the more bitter and astringing herbs actually taste better, a real plus for children (and parents too!).

In veterinarian medicine glycerin is listed for many uses both medicinal and nutritive. Except for critical short-term dose-monitored use by an animal health care specialist, alcohol should not be used in any form with animals, as they do not have the enzyme systems to convert or metabolize alcohol. Heart, nerve and liver damage, and chronic digestive problems are just a few of the potential problems a pet can have when given alcohol based products, especially over long term use. Glycerin's use in a TincTract® brand processed pets liquid herbal products line is a real plus, as it also taste's good for the finickiest of pets.

There is a popular notion that an alcohol based liquid herbal products constituents and compounds are the most readily absorbable of all herbal preparations, some say immediately and even more so than herbal glycerites. This is a premise based only on personal opinion and not on scientific, clinical or physiological facts. Such assumptions have simply never stood up to scientific scrutiny, clinical review and are contrary to the known effect on tissue responses. Consider this: Students of medicine know that alcohol is not the best medium for introducing something into the body through ingestion (oral) if immediate absorption is the goal. In fact, alcohol causes tissues to initially pucker and contract and has the added effect of drying and dehydrating tissues – *actions that block absorption!*



On the other hand, TincTract® brand processed liquid herbal glycerites, due to the succulent nature of glycerin, possess a high degree of absorption and bioavailability. One indicator of this is that glycerin initiates an immediate salivation response which draws the blood and lymph vascularity of the mouth to the surface and brings enzymes essential to absorption into action, an effect completely the opposite of alcohol. Another indicator of glycerin's superior absorptive enhancing properties is that it has a distinctive moistening quality due to its intrinsic humectant action. In veterinary medicine, glycerin IS used as a preferred carrier for many medicines in preference to alcohol. No wonder veterinarians and pet care specialists like TincTract® brand processed pets products so much.

A TincTract® brand product also has a preservative quality unmatched by any other glycerite based liquid herbal product in the industry. Why? Because we use the appropriate glycerin to water ratio for each specific herb processed – it is one of the reasons why a TincTract® brand liquid herbal product passes a burden analysis for the beverage industry and can be rated as 'aseptic' for cold fill purposes. (For nay-sayers of glycerin's antiseptic-like preservative qualities, read the previous sentence again.) This quality is naturally a part of all our liquid herbal products as well, since the same GMP compliant manufacturing and packaging standards are utilized across the board by the manufacturer of TincTract® brand products. It should be further noted that alcohol does not 'preserve' per se, but sterilizes by its life zapping disinfecting nature. To preserve, a medium must capture and *maintain* the prior synergistic biologically active state of all an herb's components. Glycerin does this, but it is not possible for alcohol to do so, therefore it is not a 'true' preservative. Also, though both glycerin and alcohol both possess 'antiseptic' qualities (the quality of keeping a finished product pure and safe) the means by which this antiseptic action is rendered is very different for each. Alcohol's antiseptic action is via a direct chemical action upon the fluid medium (the 'disinfecting' factor) whereas glycerin's antiseptic action is via its hygroscopic action on germs, spores, etc. (wherein germs, spores, etc. are deprived of moisture – the culprit in spoilage, decomposition, etc.). *(as described in industry texts concerning the absolute preserving action of glycerin through its hygroscopic qualities. See Glycerin texts in References for further information and details.)*

The manufacturer of TincTract® brand liquid herbal products also does bulk ingredient manufacturing to the beverage industry, cosmetic/personal care products manufacturers, and the foods manufacturing industry. These 'bulk ingredient only' accounts require ingredients from us that are not only totally 100% alcohol-free and are flavor-rich, but can also be 'cold filled' or 'cold packed.' This means a TincTract® brand ingredient has to possess 'aseptic-type' qualities to do so.

This also puts to rest once and for all concerns and arbitrary and misguided misinformation concerning glycerin being a poor preservative medium, especially regarding a TincTract® brand liquid herbal glycerite.

To be fair though, there is a limited justification for prior concerns and doubts of glycerin's preservative quality, which also explains the basis for the prevalent misinformation. Other companies dealing in glycerol-extracts of herbs typically contain 60% down to 50% glycerin content in their finished products, some even less! This is more economic, to be sure, but does not result in the potency, consistency and quality of a finished TincTract® brand product or comply with the tenets of a total TincTract® process as conceived of and developed by L. Carl Robinson, the originator of the TincTract® process, especially concerning the 'absolute' preservation quality a 'true' TincTract® brand product possesses and glycerin is known to possess – provided it is used accordingly.

For instance, one of our competitors has personally admitted to us that they use an across the board 50/50 glycerin/water blend that does not involve an adequate finishing process anywhere along the way. There is even indications that they now use an even more dilute glycerin concentration in their products to cut costs, which can only reduce their products preservation potential, along with diminished product potency and quality. This means that many herbs and formulas that are especially susceptible to molds and bacteria in dilute glycerin solutions, such as the mucilants and very alkaline single herbs and herbal combinations, would not have a strong enough preservative action to counter these contaminants once in a liquid form. To counter this they use flash UV radiation to disinfect their finished products. The problem of using flash UV radiation disinfection technology is twofold.

First, once the product is opened and exposed to the air, bacteria and spores are immediately reintroduced and quickly multiply in this super dilute pseudo glycerin preserved medium posing serious health problems for consumers (here's where the claim that alcohol is a better sterile medium might actually apply, regardless of alcohol's other mitigating effects on an herb's components). The second problem poses a serious product quality problem relative to the intrinsic nature of a



product's constituents and phytochemicals. UV alters and/or destroys many of the very things a liquid herbal process is intended to remove and preserve in their stabilized bioactive state. Enzymes, certain vitamin cofactors, many phyto-constituents, active components and certain highly reactive aromatic compounds are changed or destroyed by intense (flash) UV radiation – in many instances, not too different in its effects from many of alcohol's denaturing and inert rendering actions. In the end, like many alcohol processed products, a consumer does not get what is claimed by the manufacturer that they are paying for and the quality varies dramatically from batch to batch where UV radiation disinfecting technology is used due to its effects on even things as simple as color consistency.

Depending on the product, all liquid herbal TincTract® brand products are processed in a proprietary prepared base that is at the properly established glycerin/water ratios which results in astounding extractive qualities and possess incredible 'aseptic' type preservative qualities as well. In fact, Mr. Robinson still has some original TincTract® brand liquid herbal samples he made, and every three to four years he opens them and tests them organoleptically (i.e. color, taste, tactile sensation, spore activity, etc.). Not one of them has degraded (including the color remaining stable). All show continued aseptic type quality, and have remained as flavorful and effective as the day he made them – over 20 years ago! And no – our products are not irradiated or flash UV sterilized by us either.

The TincTract® processed products possess the necessary higher glycerin to water ratio, which makes it more expensive, but it pays off in a much stronger extractive action, more consistent quality, higher potency and efficacy due to all intrinsic synergistic benefits remaining intact. Add to this the addition of aromaceuticals and/or *mB!*™ to many of our TincTract® brand formulas and the value exceeds that of any other product in the marketplace – irregardless of price, hand's down! This is especially important in light of the fact that TincTract® brand products are still priced at or lower than other 'premium' liquid herbal products in the marketplace.

### **CBN™ 100% Alcohol-Free Has It All!**

Again, Cedar Bear Naturales® TincTract® brand 100% 'true' alcohol-free products possess the highest degree of extractive qualities derived from an all-natural solvent base there is, that also result in a full spectrum of constituents and compounds in their stabilized and synergistic biologically active state, and is non-destructive in its preservative powers, is super-absorbed into the body to a degree unmatched by alcohol, is highly nutritive, possesses important, yet gentle detoxifying actions, does not trigger glyceemic problems, and has a fabulous flavor enhancing quality that doesn't alter the benefits of herbs used. Further, we utilize very specific and proprietary mathematical ratios for the compounding of our glycerol-extractive base and utilize the same proprietary ratio based technology in the herb-to-fluid ratios for processing our products which results in super-enhancing the potency, efficacy and consistent qualities of our unique, innovative and well-crafted finished products.

Does alcohol possess ALL these qualities? Does alcohol even possess a simple majority of these qualities? Absolutely Not! In fact, alcohol has none of the qualities described. The evidence is overwhelmingly in favor of glycerin over that of alcohol, which places Cedar Bear Naturales® TincTract® brand processed totally 100% 'true' alcohol-free liquid herbal products at the top – they're unmatched by anything else in the herbal products industry.

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## Appendix A

(Supporting Comments & Reference Sources)

### Negative Impact of Alcohol on Health and Well-being – A Current Update

The following information concerning the deleterious effects of alcohol were taken from the 'June Russell's Health Facts' web site. Please note the references. They're from government, medical, scientific and professional sources. Of special note was the fact that dry red wines appeared to be exceptions (aka the French paradox) to alcohol's deleterious effects when taken in moderation, and in fact has been shown to be quite healthy for digestive, and cardiovascular well-being. [..... – CBN™] are inserted comments by CBN™.

#### Effect of Alcohol on Nutrient Absorption and Mineral Depletion Generally

Alcohol interferes with the metabolism of most vitamins, and with the absorption of many nutrients. Alcohol stimulates both urinary calcium and magnesium excretion.

{Dept. of Health and Human Services, Report to Congress 1990} *[Glycerin does not. In fact, it possesses remineralizing uptake qualities, and aids in absorption of many nutrients. – CBN™]*

It is best to hold off on that alcoholic drink for four hours after taking your vitamins. Alcohol may hasten a supplement's breakdown in the stomach, perhaps interfering with absorption.

{"Health Check," by Nancy Snyderman, MD, Good Housekeeping, Jan. 1998} *[The 'breakdown' spoken of here deals with the dissociation and inert rendering action of alcohol on many vitamins. – CBN™]*

Alcohol reduces the absorption of food through the lining of the small intestine and interferes with the absorption of amino acids, glucose, zinc and vitamins.

{"Alcohol and Tobacco, America's Drugs of Choice." Information Plus, 1999} *[And yet many companies who sell alcohol based liquid herbal products attempt to have the public believe the opposite. 1<sup>st</sup> year medical student knows that alcohol reduces and interferes with oral and mucosal absorption in the digestive tract. – CBN™]*

Alcohol hampers the efficient metabolizing of fatty acids.

{"Get Health Now," by Gary Null, one of America's leading health and fitness advocates, 1999}

The presence of alcohol in some beverages may lessen their health-giving properties.

{American Journal of Clinical Nutrition, 2000}

Despite an adequate diet, alcohol can contribute to the entire spectrum of liver diseases. Alcohol interferes with nutrient activation, resulting in changes in nutritional requirements.

{"Alcohol and Nutrient Interaction," Nutrition Hints by Betty Kamen. Source - the Annual Review of Nutrition 2000} *[In fact, alcohol uses the same secondary enzyme pathway that pharmaceutical drugs do, which results in many toxic byproducts getting into the system that further compromise and damage liver tissues and function. – CBN™]*

If alcohol is your soother, stress will hike your nutritional needs and alcohol will reduce nutrient availability.

{"6 Steps for Handling Stress," Lauri Aesoph, ND, Health World Online - June 2001}

According to USDA surveys, fewer than two percent of Americans are following a diet with the recommended amounts of fruits, vegetables, and whole grains.

{Eating Right columnist Lawrence Linder, executive editor of the Tufts University Health & Nutrition Letter, Washington Post Health, October 24, 2000} *[The use of alcohol negates availability of vitamins and nutrients, so if you are already taking in fewer nutrients than you should, as 98% of the population are doing, then it is even more of a risk for resulting health problems. Why compound this problem even with small amounts of grain alcohol, as are found in alcohol based liquid herbal tinctures? – CBN™]*

Food in the stomach will compete with ethanol for absorption into the blood stream. It is well known that alcohol competes and influences the processing of nutrients in the body.



{*"Alcohol, Chemistry and You," Kennesaw State University, chemcases.com - August 2002*} [*And the mouth is part of the digestive system. How did the alcohol based liquid herbal tincture industry ever come up with the erroneous idea that their alcohol based products are 100% absorbed immediately? We don't think so! And neither does the scientific community at large. – CBN™*]

When buying vitamins, supplements, herbs, etc., buy a reliable product. Most of the negative stories and warnings are from sub-standard products, or rare stories picked up by a pharmaceutical companies supporting media where the herbs were not taken as directed. To give you a better perspective: experts calculate that about ten million people in the U.S. each year suffer adverse effects from prescription drugs. Sidney Wolfe, MD, a well-known consumer advocate says that one-third of conventional drugs shouldn't be used at all. Adverse drug reactions account for up to 140,000 deaths annually in the U.S. {JAMA 1997} and 25% of all surgery in the U.S. is unnecessary.

{Dr. Arnold Relman, Editor Emeritus of the Prestigious New England Journal of Medicine} [*The same can be said for the 'standardized' 'potency guaranteed' (fractionate/isolate based) phyto-pharmaceutical spiked herbal products, whether they're dried or liquid preparations! – CBN™*]

### **Effect on Vitamin A Requirement**

More vitamin A is needed by those who drink alcohol because faulty liver enzymes are dissipated more quickly. Rats tested could not deal with vitamins because of the toxic by-products when combined with alcohol.

{New York Times, Oct. 20, 1985} [*Even if you disagree with linking rat research to human health, the fact remains that a rat, a pet for many people, could not process alcohol and had all these problems because they have no enzymes to metabolize alcohol, just like dogs, cats, horses, and any other animal. Pets do not have the flexibility to process alcohol of any kind! The point being that alcohol negatively affects vitamins. – CBN™*]

Although five times the daily vitamin A requirement has no detectable adverse effects when given alone, when combined with alcohol there is a leakage of a cellular enzyme into the blood stream. Vitamin A supplementation then might hasten rather than alleviate the development of liver disease.

{Lieber CS. Biochemical and molecular basis of alcohol-induced injury to liver and other tissues. New England Journal of Medicine, 1988}

Recent research has found that the presence of alcohol increases the amount of vitamin A in some tissues, depletes it in others (such as the liver) and speeds up or alters the process by which the vitamin is converted into metabolic by-products. Alcohol can promote extra insulin release from the pancreas in response to glucose, causing hypoglycemia and at the same time, alcohol depletes the liver's glycogen stores and impairs its capacity for formation of new glucose.

{The Nutritional Effects of Alcohol, Mount Sinai School of Medicine Complete Book of Nutrition} [*The reason for the high glycemic index of alcohol has just been described. On the other hand, glycerin actually does the opposite of alcohol in these cases. In fact it is possible that glycerin loads up glycogen stores in the liver – a real plus in deed. – CBN™*]

Alcohol interferes with zinc and vitamin A metabolism in the liver and can negatively affect night blindness.

{*"Eye Signs Can Reveal Your Nutritional Health," alternativemedicine.com - June 2001*}

Continued alcohol use can create changes in the digestive system which make nutrient absorption difficult. Alcohol may interfere with the body's ability to use vitamins. Breakdown of vitamin A also accelerates and may lead to vitamin A depletion in the liver. Sometimes acetaldehyde, a byproduct of alcohol oxidation, will bind with an amino acid, leading to reduced glutathione, an important substance in the liver. Glutathione helps scavenge toxic free-radicals.

{*"Alcohol's Effect on the Liver," Charles Lieber, MD, Director of Alcohol Research and Treatment Center, professor of medicine and pathology, Mt. Sinai School of Medicine of the City University of New York, September 2002 - [www.health20-20.org](http://www.health20-20.org)*}



## Effect on B Vitamins

Alcohol destroys B vitamins. This is a list of minerals and vitamins that you will need to supplement if you drink alcohol: calcium, potassium, magnesium, zinc, copper, vitamin C, thiamine and riboflavin.

{“The Complete Guide to Your Emotions and Your Health,” Editors of Prevention magazine. 1986} *[Thus, alcohol also destroys most vitamins, especially the B vitamins, in herbs that have been tinctured with alcohol. – CBN™]*

You can guard against folic acid deficiency by making sure that your diet is balanced. Avoiding alcohol will lower your risk for this deficiency.

{American Medical Association, 1994}

Alcohol is known to promote folic acid deficiency, and has also been linked to an increased risk of colon cancer.

{Vitalcast.com - HealthNotes on line. Klatsky A. L., et al., "The relations of alcoholic beverage use to colon and rectal cancer," American Journal of Epidemiology, 1998} *[Unlike any alcohol based herbal tincture, an herbal glycerite can be used for enemas, and colonic irrigation purposes, with surprising benefits. – CBN™]*

Even in small amounts, alcohol will destroy vitamins B12, B6, and folic acid, which causes an increase in susceptibility to homocysteine, a greater predictor of heart disease than cholesterol.

{“The Ultimate Anti-aging Program,” Gary Null, 1999}

Alcohol can lower levels of both folic acid, a B vitamin that may prevent polyp formation, and methionine, an amino acid that appears to block carcinogenesis. The more you drink the higher the risk of colon cancer.

{Self Healing newsletter, Dr. Andrew Weil, Jan. 2000}

Folic acid, a B vitamin, is important. The brains of the nuns in the study who had high levels of folic acid in their blood deteriorated more slowly. Alzheimer's is a brain-wasting disease, and the last thing you want to do is to nutritionally deprive the brain tissue. The body is rusting and you have unstable oxygen that tears down the tissues and joints, causing oxidation. Depression may make the symptoms appear earlier.

{The Nun's Study," June 23, 2001, People's Pharmacy, Public Radio. Guest: Dr. David Snowden, author of "Aging with Grace."}

Ten to thirty percent of older people may be unable to absorb natural B12 from food.

{“Women's Health Advisor,” Weill Medical College of Cornell University, June 2001} *Author's Comment* Alcohol use contributes to this depletion.

A new study in the journal Epidemiology reported that women whose diets were lowest in folate faced no greater cancer risk than women with higher-folate diets - if they were nondrinkers. But if they drank more than two alcoholic drinks a week, their breast cancer risk increased almost 60 percent. JAMA earlier reported similar findings from the Nurse's Health Study (cited as a 40% risk). It is too early to know, however, if simply getting sufficient folate is enough to prevent alcohol's damaging effects.

{“Alcohol Worse for Some Women,” Karen Collins, R. D., msnbc.com/news - Dec. 2001}

Avoiding alcohol can minimize already depleted nutrients. Ten to 30% of older people may be unable to absorb natural B12 from food.

{The Center for Women's Healthcare newsletter, June 2001}

A fifty percent increased risk of early miscarriage is linked to the lack of folic acid, says a Swedish-American study.

{HealthScout.com - October 2002}

Every drink you take causes thiamine loss, impaired B6 activation, folate loss, and increased magnesium excretion.

{from the book “Hormone Replacement Therapy: Yes or No,” by Betty Kamen - 2002}



### Alcohol's Effect on Minerals as Coenzymes

The use of alcohol lowers magnesium at a faster rate. Magnesium is important in over 300 enzymes in the body, and a deficiency can result in a host of problems. Blood test results can show it to be normal when levels are low. Calcium is used to make a muscle contract, while magnesium makes it relax.

{from the book: "Tired or Toxic," by Sherry A. Rogers, an expert on chemical sensitivities, and how low levels of vitamins/nutrients can cause serious health problems, 1990} *[As stated before, alcohol denatures, renders inert and destroys just about all water soluble nutrients and active constituents that previously possessed a bio-active nature. No where is this more evident than in what it does to an herb's water soluble and aromatic components when that herb is tinctured in a fluid base (i.e. menstrum) containing even small amounts of alcohol. – CBN™]*

Even a small amount of alcohol can drain magnesium reserves.

{from the book, "Preventing Arthritis," by Donald Lawrence, MD, PhD, specialist in the study of pain, 2000}

### GABA

Alcohol lowers GABA which makes it more likely that those who consume alcohol will have panic disorders. A Yale study showed that low GABA levels are linked to panic disorders. GABA is a major inhibitory neurotransmitter, a brain chemical.

{About.com - July 2001} *[Consider the potential 'triggering' effect alcohol based liquid herbal tinctures have, even those that have been processed with alcohol, had the alcohol removed and replaced with glycerin. The alcoholic 'trigger' is still present, as many dry alcoholics will attest to. – CBN™]*

Lowered inhibitions accompany low-dose use of alcohol. The neurotransmitter GABA, which serves as an inhibitor, is most affected by alcohol. For some who consume alcohol, lowered inhibition results in being heavily involved in aggression, violence and sexual assault. When GABA receptors are activated by alcohol, they change over time to become less sensitive not only to ethanol but to GABA, benzodiazepines, and other GABA agonists as well.

{Valenzuela & Harris, 1997};{alcoholmd.com - October 2001}

### Aging and Alcohol

The older population is already malabsorptive so the risk is even greater when using alcohol. As you get older, a common problem is low stomach acid and diminished secretion of digestive enzymes. Lack of hydrochloric acid and digestive enzymes can lead to malabsorption of nutrients, plus the growth of putrefactive bacteria and gas-producing yeasts in the intestinal tract.

{Richard P. Huemer, MD, "Poor Digestion in Elderly," Let's Live magazine, Nov. 1999. In 'Your Health Column.'}

### Osteoporosis

"For 28 million Americans (80% women), osteoporosis is a major public health threat. Ten million already have the disease and 18 million more have low bone mass. Limit alcohol because it is a risk factor. "

{National Osteoporosis Foundation, 2000}

### Oxidative Stress

Alcohol hastens the breakdown of the antioxidants in the blood, speeding its elimination from the body.

{CNN.com - July 2000} *[The same effect has been observed in alcohol based liquid herbal tinctures with a high ascorbic content (a water soluble component) and citric based flavanoids due to the fact that these fluidextracts darken with time as the oxidative reduction process (REDOX) ensues for both REDOX of antioxidants and many mineral components. (Often, other less antioxidant and/or mineral rich alcohol herbal tinctures lighten ('bleach') over time, not darken – in either case, indicative of REDOX or 'bleaching' of an alcohol based product.) – CBN™]*



In patients who had oxidant stress from alcoholic-induced liver disease, antioxidant therapy (2,500 mg a day of vitamin C for 10 days) accounted for over a 50% decrease in stress. This would be a wise supplement for anyone drinking significant amounts of alcohol, but even wiser to avoid the alcohol.  
{www.mercola.com - May 10, 2001}

The by-products of alcohol metabolism generate oxidants that can contribute to cell damage. An imbalance between oxidants and antioxidants (substances that neutralize oxidation) can create oxidative stress, a state marked by continued production of oxidizing agents and escalation of cell damage.  
{Alcohol Research & Health, Vol. 25, No. 4, 2001}

### **Alcohol, Nutrients and Anti-Social Behavior**

There has been evidence dating as far back as 1942 linking nutritional deficits to antisocial behavior. A study in the British Journal of Psychology (2002) states that young adults who consume adequate amounts of essential nutrients are less likely to engage in antisocial behavior, including violence.  
{"Nutrients and antisocial behavior," Betty Kamen, PhD, and Michael Rosenbaum, MD, "Nutrition Hints," August 2002} *Author's comment:* "The use of alcohol negates needed nutrients."

### **SUMMATION**

The point of this Appendix (A) is to convey that glycerin, not alcohol, enjoys the higher station of not only being a superior and much more versatile fluid extractive solvent and true preserving agent, but is friendlier on essential water soluble and aromatic nutrients and cofactors, as well as possessing distinct tissue cleansing and building properties. Alcohol does not possess many, and often times, any of the positive qualities attributed to it. One example (of many) includes its purported immediate oral absorption, but in fact, alcohol initially inhibits oral absorption.

Among the food processing industry and a small cadre of liquid herbal producers it is now well accepted that alcohol is not capable of intrinsically removing many of an herbs active constituents to the degree that glycerin is capable of doing. The key, and one that the early Eclectics missed, was 'how' a menstrum (the fluidextract medium) is 'worked,' especially in the case of glycerin. Glycerin has a much higher flash index, a much lower oxidato-reductive (REDOX) index, a decidedly higher colloidal enhancing index while maintaining the 'wetter-water' aspects of a solvent, and it is much more stable in maintaining the intrinsic synergistic and biologically active qualities of the varying constituents, coloring, etc., of an herbs fluidextracted parts than alcohol is intrinsically capable of doing.

Unlike the harsh chemical solvents that came to be used extensively by the pharmaceutical industry (i.e. hexane, acetone, benzene, etc., that's now been supplanted by petrochemical and coal tar derived synthetic chemical drugs), certified Kosher USP vegetable glycerin is all natural, very nutritive and a phenomenal extractive solvent when used in the 'Think Outside The Box' way it's used in the TincTract® brand process for making totally 100% 'true' alcohol-free premium liquid herbal products. And let's not forget – glycerin is safer!



## Appendix B

### **TincTract® brand process versus other glycerite processes.**

The TincTract® brand process is a unique multi-step liquid herbal processing technology invented by L. Carl Robinson in 1982. In 1983, in collaboration with a fellow herbalist and friend the 1<sup>st</sup> generation process itself was developed utilizing key aspects of the traditional 'Galenic' based 4-Fold Model for Life.

The name TincTract® is a conjunction of the words TINcTure and exTRACT. The word 'TincTract' was conceived of by Mr. Robinson in 1982 and shortly thereafter its trade name use was first utilized by Mr. Robinson on products made available by him to the Intermountain lay mid-wife community.

Unlike the Spagyric model (that is philosophically and application wise 'grain-alcohol' based, i.e. 'spirits') for liquid processing herbs that utilizes a 3-fold (salt/mercury/sulfur based) philosophical energetic model, the TincTract® model utilizes a 4-fold Air/Fire/Water/Earth based philosophical model that is 'glycerin' based. There are some distinctive similarities between the TincTract® model and Spagyric model, however, the TincTract® concept is very different and much more 'grounded' and versatile than the Spagyric model both as to its theoretical and application based premises (see Appendix C for further clarification). That's why though they appear similar, the two are very different when thoroughly understood.

The genuine TincTract® brand process consist of 4 distinctive key steps rooted in the metaphoric based 4-fold energetic model. Metaphorically speaking they are Earth (drying the herbs) Water ('cold' processing), Fire ('dynamic' processing) and Air ('cleaning/finishing' processing). Within each of these key steps are a myriad of GMP/HACCP compliant proprietary and trade secreted procedures and protocols that make the commercial applications of the TincTract® brand process so extensive and effective like no other. The TincTract® brand process is now in its 6<sup>th</sup> generation of proprietary commercial enhancements and improvements that also includes unique mathematical ratios and constructs that result in very unique and potent finished products.

Another perquisite for the TincTract® process is that it must contain a high glycerin to water ratio (which varies from herb to herb) that is intended to be an integral part of the proprietary TincTract® brand processing technology, as well as impart a distinctive stabilizing and 'absolute' preserving quality unique only to TincTract® brand herbal glycerite products. The latter quality, 'absolute' preservation of a TincTract® brand finished product is aimed at preserving all water soluble and aromatic constituents that are heat and alcohol sensitive, as well as UV and flash heat sensitive, without the use of chemical preservatives, flash heating (pasteurization), UV sterilization, etc. In other words, a truly all-natural product throughout. Only a genuine TincTract® brand process is capable of producing all these qualities that result in superior 100% 'true' alcohol-free liquid herbal glycerite products.

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## Appendix C

### TincTract® process versus Spagyric processes compared

Recently L. Carl Robinson, the originator of the TincTract® process, was asked if the TincTract® process was the same as the Spagyric process. He answered, “No! Why? Because he had learned of the Spagyric tradition AFTER he had originated and elucidated the 4-fold Model for Life™ and conceived of the TincTract® process. Even though the TincTract® process incorporates all the conceptual principles found in the Spagyric concepts and process it involves a whole lot more!” In other words, the TincTract® paradigm possesses all the distinctive 3-fold Spagyric elements and concepts but moves from there into the realm of the 4-fold Galenic ‘Model For Life™’ paradigm - what the TincTract® method was based on in the first place.

One distinctive aspect of the Spagyric philosophy that is very different from that of the TincTract®’s Model for Life™ based philosophy is that its applications as a fluid extractive method is based on the use of diatomic alcohols (grain alcohol, ethanol) as an extractive fluid medium, while the TincTract® method was developed to utilize triatomic alcohols (glycerin, glycerol). Ethanol, or what we call ‘common’ or ‘grain’ alcohol, is a diatomic alcohol. Glycerol (i.e. Glycerin), a common all natural, edible, nutritive compound found in all plant and animal life, is a triatomic alcohol. The difference between the two is akin to comparing refined white table sugar (i.e. common alcohol) to complex polysaccharide starches (i.e. glycerol) – the former is known to imbalance and stress the body, while the latter has a balancing and building effect on the body.

Another distinctive difference is that the TincTract® method utilizes a unique *serial-type* extraction approach, Because of the lower polarity of a ‘fresh’ extractive fluid base it possesses a super hungry quality thereby exerting greater extractability force on the herb(s) being extracted. This is very different from super saturating techniques that is typically done in the liquid herbal products industry and has made its way into many Spagyric based operations.

Serial-type extractions result in surprisingly very potent and concentrated finished products. The viability of serial-type extraction processes as opposed to super saturation processes is well established in chemistry. We are confident that chromatography would show a finished TincTract® liquid herbal product possessing amazingly high levels of marker compounds, vitamin factors and co-factors and a dense mineral content. But it’s the broad spectrum of components present in the finished product that would be most surprising of all.

In fact, we have been told that liquid herbal products made using the TincTract® brand process have been analyzed by companies attempting to ascertain the make up and nature of TincTract® processed products and indeed have informed the originator of the TincTract® process that these products have been found to be very high in marker compounds and nutritional factors, as well as possessing a broad full spectrum of naturally occurring synergizing components only a ‘whole’ herb based product can possess. They always inquire as to how it is possible to do this with a ‘glycerite’ based process.

Unlike any other extractive or tincturing process currently being done, none have the intrinsic quality of removing such a high percentage and broad spectrum of the available components in an herb like the TincTract® process does. This is due not only to the unique operating premise upon which the TincTract® process is based, but the numerous generational proprietary commercial enhancements that have been made to the process since 1983 that is exclusive to the company utilizing and producing TincTract® brand liquid herbal products. The TincTract® brand process is now in the 6<sup>th</sup> generation of these unique exclusive improvements and enhancements, which now includes highly proprietary mathematical ratios and constructs that have been shown to add a unique and highly effective influence that results in a profoundly superior net quality of value where less actually results in more! In other words, the TincTract® process has evolved to where it has actually crossed the threshold into where the direct influence of quantum physics is more the rule than a mere accident or exception. The TincTract® brand process is not only Earth-Friendly, but Universally-Enriching as well.

The preservative qualities of a TincTract® brand processed liquid herbal product are unmatched in the industry. Without altering or destroying important constituents or compounds, including enzymes and vitamin co-factors, glycerol maintains and stabilizes the bio-active qualities of these components. In fact, the originator of the TincTract® process opens up a set of original TincTract® single liquid herbs every 3 to 4 years to perform an organoleptic test and they’re still as stable, full colored, flavor rich, efficacious, potent and contaminant-free as the day they were made – over 20 years ago!



A TincTract® brand processed liquid herbal product possess a potency, full-spectrum content, intact intrinsic synergy and balance of the raw herb, contaminant-free purity, and a uniquely consistent efficacy that in a quarter of a century working as an 'insider' in the herbal and health products industry the originator of the TincTract® process has yet to see matched by any other finished liquid herbal product.

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## Company & Product Differentiation

### The Stuff That Sets A TincTract® brand Processed Product Apart From the Others

There are numerous points that set the company that exclusively manufactures TincTract® brand products apart from other competitors products both in the liquid herbal products industry and the herbal products industry at large. Some of those differentiating points are:

- Company that utilizes and produces TincTract® brand processed products is founded and owned by a ‘real’ professional clinical herbalist (a member of the American Herbalists Guild) who has also been an ‘industry insider’ to the largest herbal products companies in the industry for over a quarter of a century, developed the TincTract® technology, is a published author, and the co-developer of a successful certified herbal/health practitioner’s educational program practiced by thousands of clinicians and lay herbalists throughout North America.
- 100% ‘true’ alcohol-free (no alcohol at any time touches the products).
- Products that taste great. (TincTract® brand formulas are the best tasting in the industry).
- The highest quality premium grade herbal glycerite products available.
- All products contain FCC and USP grade ingredients.
- All products are Kosher, Halal, and Vegan compliant.
- Facility and operations FDA registered, U.S.D.A. approved, GMP/HACCP compliant.
- All products have zero (0) net carbohydrates and have a low glycemic index.
- Super efficient proprietary TincTract® commercial process (even enhances and adds unique qualities to glycerin’s already versatile qualities).
- One of a few remaining handful of herbal products companies to produce ‘whole’ herb products exclusively (as opposed to isolate-based fractionate ingredients).
- No added chemicals or preservatives – yet needs no refrigeration.
- Originator and the industry expert in the ‘aromaceuticals’ concept.
- Developed the exclusive proprietary BTC™ energetic signature technology used in many formulas.
- Clinically and differentially based developed liquid herbal formulations  
(To our knowledge, unique and exclusive to manufacturers of TincTract® brand products, and done longer in this fashion than any other individual and/or company in the industry at large).
- Products possess incredibly high synergistic bioactive nutritional density (vitamin, mineral, enzyme, cofactors and trace element rich) in its ‘whole’ ratio-intact synergistic state.
- Have consistent potency, efficacy and really work, especially over long term use (stores and practitioners report that less can consistently be used than any of the competitor’s liquid products and the results hold).
- Label posts 3-year shelf life – one of the longest in the industry, and needs no refrigeration!
- Incredible versatility (can be mixed with other TincTract® brand processed products and/or in juices, foods, etc. even enhancing the flavor of things added to).
- The original and first 100% alcohol-free herbal formulas line for children.
- Children prefer the taste of TincTract® brand products to any others.
- Numerous practitioner based wholesale accounts that work with another competing herbal products line have told us that they’ve raised their children on TincTract® brand Children’s products exclusively because we were the only liquid product line they could find that consistently works and tastes good (the competing herbal products company they also represent has a liquid herbal line, but it’s not consistent in efficacy, taste’s awful, and is processed with alcohol, hence their using our products as their exclusive liquid herbal products line.). We’re not aware of any other company with this unique type of complementary relationship to another competitor’s products in the herbal products industry.
- The original and first 100% ‘true’ alcohol-free herbal products line for pets. (Developed and formulated in collaboration with a licensed doctor of veterinary medicine).
- Pets prefer the taste of our products over any others.
- Endorsed by professionals and licensed physicians.
- Very education/information based marketing strategy (that independent natural products stores, MLM organizations, and practitioners demand – but few companies in our industry are able or capable of delivering on).
- Cedar Bear Naturales® and its TincTract® brand products is one of very few viable growth oriented privately owned independent commercial companies in the herbal products industry
- TincTract® brand products have the greatest potential of any liquid herbal product lines in the industry for capturing more market share and the most loyal customer following for stores/practitioners there is.