The Multiplex Formulating Approach

(Multiplex Formulating – A Highly Differentiated Approach To Formulating Liquid Herbal Blends)

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At their core, competently formulated herbal formulas, whether dry-format herbal formulas or liquid-format herbal formula blends, are, to one degree or another, an amalgamation of tradition, science, and art. In the case of the *Multiplex* formulating, a liquid-format-based approach to formulating the totally alcohol-free multi-condition-based serialized, multi-step, multi-dynamic processed potent herbal glycerite concentrates, multiple considerations that incorporate tradition, science, and art into a single multiplex formulary approach, include such considerations as: traditional medicine systems; phytopharmacognosy; phytopharmacology; chemistry interactions; mineral profiles; plant parts used; formula anchoring; harmonic coupling of differing ingredients; primary/secondary/tertiary groupings; energetic dynamics; along with the associated scientific considerations of structure & function factors of physiology and biochemistry processes, that all result in an outcome of *Formulaic Synergy*.

Formulaic Synergy: is the ultimate targeted outcome of formulating an herbal blend, including both the herb recipe itself and the multiple considerations that go into determining a formula recipe, with the end goal of a synergy-driven efficacious formula blend taken at reasonable effective doses. It is what sets multiplex-based formulas apart from others.

Multiplex Formulating Approach: The multiplex approach to formulating complex herbal blends involves highly differentiated considerations, and it's how the Author formulates, especially the aforementioned totally alcohol-free glycerite concentrates into complex liquid herbal blends.

What does the term *Multiplex* actually mean?

Dictionaries define the term multiplex as: "Consisting of many elements in a complex relationship," and "Having many parts or elements combined into one system, or consisting of multiple components." Multiplex is an approach rooted in *differentiation*.

Differentiation is the conceptual basis and application of a multiplex approach to formulating herb blends, and it's the path to achieving formulaic synergies in a finished herbal blend.

At its core, multiplex formulating is a highly differentiated approach to herbal formulary work. Taking a multiplex approach to herbal formulating is not easy, as it requires a sort of multi-tasking/multi-blending function of the brain to bring so many aspects into a single, holistically integrated whole, resulting in a finished product that possesses formulaic synergies.

That said, let's go through, point by point, some of the different considerations that go into a multiplex formulary approach. The following considerations are not exhaustive of all considerations the author uses in his multiplex approach to herbal formulary work, but include

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the most important considerations factored into this highly differentiated approach to formulating complex, synergy-driven herbal formula blends.

The Goal… *Formulaic Synergy*

The Multiplex Considerations: The following list of differentiated considerations is not in priority order (i.e., from most important to least important), as all points are equal when used in formulation decisions aimed at achieving formulaic synergies in a complex herbal formula blend.

• **Traditional uses** tie into worldwide traditional medicine systems that are primarily herbal and nutrition-oriented. This is an important consideration, as traditional medicine systems are among the oldest systems of herbalism, some for millennia. A lot of the herbal aspects of traditional medicine systems have been studied from a Western science perspective and found to be correct, from a science-based physiological and biochemical effect on the body, sometimes to a level that baffles Western science as to how such 'unscientific' anecdotal and evidentiary approaches, going back thousands of years to their beginnings, can be so accurate without the scientific inputs of modern chemistry, pharmacognosy, pharma science, etc.

Many herbal practitioners decide to immerse themselves in one or more of the different traditional medicine systems such as the more well-known traditions of: TCM (Traditional Chinese Medicine – written), Ayurveda/Siddha/Unani Tibb (India's traditional medicine systems – written), TNM (Tibetan Natural Medicine – written/oral), ATM (African Traditional Medicine – that includes Ifa/Yoruba, Sangoma, Dibia, ETM/Ethiopian Traditional Medicine – written/oral), Tibb al-Nabawi (Islamic traditional medicine system – written), etc. Typically, these medicine traditions date from a few centuries to over 3,500 years ago, with Ayurveda claiming an ancestry of 20,000 years or more. Those who immerse themselves in these traditions can attain the status and title of doctor, and many do so with high proficiency.

All these traditional medicine system include their own formulary traditions. Most, however, are based on formularies, i.e., texts developed over centuries, and for some, millennia. The commonly used TCM formulary is traditionally believed to date back over 3,500 years to the legendary Yellow Emperor, while Ayurvedic texts and their herbal combinations are, in some Ayurvedic traditions, believed to extend back 20 millennia or more. By and large, however, when it comes to formulating herbs, these traditional medicine systems do so by rote: meaning practitioners follow existing recipes listed in their texts and may occasionally venture into discretionary formulation of herbal blends.

What the author has done regarding the various traditional medicine systems of the world is to not specialize in any one of them or even get into a detailed association with them, but have looked at and learned the underlying philosophy, modeling, metaphoric aspects, and premise they operate from, and look to see where the underlying commonalities are, especially the herbs, and in particular, the energetic properties assigned to them, and from there take those properties from a traditional medicine system and transpose them over to herbs the author is more familiar

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with, especially Western herbs, though the author is also aware of, studied, and uses numerous foreign originating herbs from the East that are easily available and well accepted here in the West, even used here as if they are indigenous to the Western hemisphere, such as Ashwagandha, Asian Ginseng, Astragalus, Bupleurum, Dong Quai, Ginkgo, Goji, Gymnema, Shativari, Schizandra, Tangka Ali, Tulsi (Holy Basil), to name a few.

All said and done, traditional medicine systems that list and use herbs indigenous to their culture and tradition make this an important consideration when formulating a complex herbal blend, especially when combining Western herbs with Asian-origin herbs or determining when an indigenous Asian herb can be replaced with a Western herb possessing the same or similar properties.

• **Phytopharmacognosy** has to do with the study of botanical-based constituents and their actions in biological systems. This is a highly specialized science that one can even obtain a degree in. At a basic level, it starts with primary constituents, called *actives*, that are often considered the *marker* compound of an herb. It's called a marker because it is one of the ways that a botanical is identified, and where specific claims of constituent content and actions are made, it may be required to lab-identify the presence of the marker compound, and in specific instances, even the quantity of that constituent.

Specific phytochemicals possess specific actions and targeted effects on tissue and fluids of the body, some mild, others moderate, and others with profound effects, called *degree of effect* (see description of this consideration below). This degree of effect is also a consideration in working with the pharmacognostic aspect of herbs.

What herbs to use in a formula requires these phytochemical considerations as part of the multiplex formulary equation, especially when ascertaining *harmonic coupling* of different herbs into a formula for formulaic synergies, and more so where there is greater complexity of herbs in a formula.

• **Constituent Modulation** has to do with the process of turning a constituent that may possess borderline toxic agents or actions, which, if taken in small amounts, may not be a problem, but if taken in higher therapeutic or nutritive-building amounts can result in compounding toxic buildup in the body. Not all herbs possess this property. However, those that do must be subjected to a process, say involving heat, for instance, to reduce the potential toxicity of certain botanical constituents. This is called *Adaptive Detoxification*, which, in a multi-condition-based serialized, multi-step, multi-dynamic fluid extraction process, includes *Synergistic Detoxification* of such constituents. Synergistic detoxification is defined as preserving a constituent's poly-constituent-based interactions and synergies with other constituents it was intrinsically coupled with in the raw material and that have passed through to the extracted solution. Such synergistic detoxifications must be done carefully so that the poly-constituent ratios intrinsic to different constituents, with their coupled synergies, are not decoupled in a denaturing way.

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One example of adaptive detoxification that includes synergistic detoxification involves Elderberry. Elderberry contains a class of polyphenolic compounds called anthocyanins, which are glycosylated forms of anthocyanidins, of which, where Elderberry is concerned, includes Cyanidin, one of the more potentially toxic anthocyanins. The potentially toxic effects of Elderberry anthocyanins are detoxified adaptively when the appropriate process is used.

So, what is done to certain herbal ingredients, aimed at certain constituents, in terms of processing considerations, is part of the multiplex formulating model.

• **Phytopharmacology** implies the clinical aspects, as embodied in the professional-level practice of *clinical* herbalism. For the proficient herbal practitioner, it also encompasses the nuances of informed clinical judgment, a medical term in the Merck Manual that implies intuitive insight honed through years of study, experience, astute observation, and clinical evaluation. Pharmacology, particularly phytopharmacology, is central to the clinical aspect of clinical-based herbalism. Here, it's not only about knowing the fundamentals of phytopharmacognosy and the constituents' effects of herbs, but also how those constituents affect the body beyond treating a condition in and of itself. How herbs and their actives affect the body as a whole, and how they interact with certain foods, different medications, and even other herbs, are part of this pharmacology equation and are why it is an integral part of multiplex formulating.

• **Chemistry factors** have to do with chemical-driven interactions and potential discordancy issues between the different phytochemicals from the different herbs in a liquid formula blend. This involves pH and how it drives many chemical interactions in both a liquid blend and the body, as well as how pH dynamics affect the liquid formula blend itself. For example, in a liquid herbal blend, if herbs with a highly acid-leaning component, such as tannin, are combined with herbs with a highly alkaline-leaning component, such as strong alkaloids, the result will be akin to a proverbial cat-and-dog fight within the mixture, resulting in oxidation, decoupling, novel complexing, or destabilizing the blend. This potential for pH interactions between differing components in a liquid herbal blend is too often overlooked, but it is essential to blending a formula that retains its synergy-driven poly-constituent ratios, integrity, and stability. pH dynamics are liquid-based, specifically where water is an ingredient. When compounding dried herbal ingredients, this is less of a concern, except for the pH dynamics a compounded dry blend may have within biological systems, which are fluid-based and strongly affected by pH activity and its dynamics. That said, for liquid herbal formula-based products, potential pH-driven activity is an important chemistry-related consideration in a multiplex approach to formulating liquid herbal blends.

• **Mineral profiles** have to do with the elemental and vibrational-based presence of major, transitional, and trace minerals in an herb. The author helped set up the publication of the first-ever research-based book on the mineral content of various herbs, *Nutritional Herbology – A Reference Guide to Herbs*, by Mark Pederson, a Research Chemist and former QC technician at

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a large publicly held herbal products manufacturing company, which made their lab's analytical equipment available to him for his original research for this book, most recently in its 11th printing: 2020.

The author of this presentation had already learned that, just as foods contain certain minerals and mineral groups with specific affinities for body systems and functions, herbs have the same affinities. Mark's mineral analysis of herbs clearly showed the author, by comparative analysis, that herbs also have a mineral-driving aspect to their affinities for specific body systems and functions, because, on an overall basis, the author noted that the mineral profile of an herb and that mineral group's affinity for a body system or function in many instances aligned with the known traditional effects of that herb's phytochemicals' affinities for the same body systems and functions. Mineral profiling of herbs used in formulating an herbal blend is one of the most overlooked aspects of herbalism, but one the author considers when formulating herbal blends, whether dried or liquid-based.

It's important because this mineral aspect is the cornerstone of the nutrient and micronutrient factors that, like foods, are present in all herbs. In fact, the author believes and has long taught that this underpins the regenerative component of herbs. From this mineral aspect of herbalism, he was the first to coin the term *Nutritional Herbology* (aka Nutritional Herbalism), which Mark Pederson used for the title of his book, and which the author used as the name of the 1st-generation development of his applied herbology course, which he later expanded into a beginner and intermediate series of courses called *Integrative Herbal Alchemy*, with segments on the mineral-driven nutritional aspects of herbs and herbalism.

Minerals, as cornerstones of nutrition and micronutrient content of herbs, and the overall effects of herbs, are another multiplex consideration in formulating an herbal blend for superior formulaic synergies.

• **Plant parts used** are an essential consideration because even though a botanical may have particular constituents that are found throughout the whole of the plant, as a general rule, such constituents will be more concentrated in one part of the plant than in another part of the plant. One well-known example is Slippery Elm, whose active component is heterogeneous polysaccharides that contain a complex of various sugars, including arabinose, galactose, rhamnose, xylose, and uronic acids, that are bound up in a mucilage matrix. The inner bark is most abundant in this component, while the outer bark contains very little of the mucilage matrix, as it is more woody and contains amounts of tannins that the inner bark doesn't.

Some parts of a plant are edible and can be used for medicinal purposes, while other parts may be too strong for lay practitioners to use or too toxic to ingest. A good example of this is the Elder plant. While the Elderberry and Elder flower are usable parts of the plant, most other parts are toxic.

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• **Anchoring** is what the term indicates: determining the key herbs that *anchor* the formula as a whole. These key herbs define the formula's overall purpose. Metaphorically, the key herb(s) are like the central sun in a solar system of other planets; the sun anchors the other planets in that system.

However, anchoring herbs are not always the predominant herb ingredients in a formula recipe, as their presence in a multiplex-based formula is based on a constituent basis and the driving intensity of an herb, also called the *force of effect,* which is tied to such a constituent's intrinsic concentration in a finished liquid herbal formula recipe. This is an especially important multiplex consideration for formulating liquid herbal formula blends.

Anchoring is one of the first concepts of formulary herbalism practiced by herbalists who are beginning to formulate their own formula blends, typically starting with three to four total herbs in a formula, with one or two as the anchoring key herbs in a simple formula recipe. Even with complex herbal blends, no more than three anchoring key herbs are typically used in a highly complex formula recipe.

• **Harmonic coupling of differing ingredients** refers to choosing ingredients aimed at integrating distinct ingredients and their constituents together so that their physical, chemical, and functional characteristics interact in a complementary manner, thus preserving and/or enhancing their individual properties while promoting a more unified and synergistic behavior of the overall formula recipe. Intentional harmonic coupling of different herbal ingredients within a formula recipe is a cornerstone of formulaic synergies.

• **PST (Primary/secondary/tertiary) grouping** is a concept that is incorporated, to one degree or another, into multiplex formulating of a liquid herbal formula blend. It's a concept typically found in mid-level formulary herbalism, but it's also a consideration at advanced levels of multiplex formulating herbal formula recipes.

Basically, this concept is based on the premise that you approach herbal recipe formulation from a three-level perspective, similar to a three-level pyramid model. The bottom 1st level of the pyramid represents the greatest amounts of ingredients in the recipe, while the middle 2nd level represents less than the 1st-level base, and the top 3rd level uses the smallest amount in a recipe.

Any of these pyramid levels can contain the anchoring key herbs, depending on the anchoring herb(s) primary constituent's force of effect in a formula. The greater the force of effect, the less amount will be used, placing such herbs in the middle 2nd tier or top 3rd tier of the PST pyramid model; as previously mentioned, key anchoring herb(s) are not always at the largest ratio/concentration levels in a formula recipe.

• **Energetic dynamics**, also called *herbal energetics*, has to do with metaphorically understood alchemic forces of nature and their core physio manifestations, and can be felt through taste effects and sensitivities, and systemically felt effects, both physio and vibrational.

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Many traditional medicine systems that deal primarily with herbs typically include an energetics aspect. They vary from tradition to tradition. Some are 3-fold modeled systems, such as the 3 Doshas of Ayurvedic medicine, or 5-fold modeled systems, such as the 5 elements of Traditional Chinese Medicine. However, the most common modeled system worldwide is the 4-fold energetics model, as found in ancient Arabic, Greek, Roman, African, and Tibetan traditions; medieval European alchemy; and historic and contemporary Native American symbolisms and traditions.

The 4-fold energetics model used in the multiplex approach consists of the four elemental forces of nature and their core manifestations, which form the basis of the physical universe. Air, Fire, Water, and Earth, which, on a two-dimensional cross-hatch model, show the four primary manifestations of nature: Hot, Cold, Wet, and Dry. These primary manifestations of nature are the core manifest basis of all herbal actions, since herbs will exhibit, at their core, one of the predominant qualities of Hot/Wet, Hot/Dry, Cold/Wet, and Cold/Dry. This forms the foundation of herbal energetics and underpins physiological effects in biological systems at a core manifest level.

Every action, effect, and manifestation of life, including what is happening in biological systems, at its most core level, is a predominant manifestation of Hot/Wet, Hot/Dry, Cold/Wet, or Cold/Dry, which are the result of interactions between the Air, Fire, Water, and Earth forces of nature.

Where multiplex formulary considerations of herbal energetics are concerned, knowing the primary core manifest action of an herb is one thing, but figuring out the predominant primary manifest energetics of a formula, with its herbs' different energetic profiles, involves knowing all the above considerations and distilling them into ascertaining the overriding predominant energetic profile of a formula recipe. I also refer to the above considerations because, metaphorically and to a limited degree, each one has its own unique four-fold energetic profile.

Speaking of metaphor, it is a powerful learning tool and enables one who is well connected to metaphoric thinking to see similarities in things the reductionist-driven mind finds harder to see and understand. With an understanding, and even better, a metaphor-based mindset, herbal energetics is not only understood on a rudimentary level, but the more nuanced aspects of herbal energetics are understood and, in turn, play heavily into the multiplex approach to formulating complex herbal blends.

• **Associated scientific considerations** of structure & function factors of physiology and biochemistry processes are essential considerations in formulating complex herbal blends. In the author's Integrative Herbal Alchemy series, he teaches the attendees that if they're planning to take a more serious approach to becoming an herbal practitioner, they should learn at least high school-level biochemistry and physiology, and better yet, first-year college-level biochemistry and physiology. This does not mean an individual has to enroll in college to learn the fundamentals of biochemistry and physiology; they can self-learn by getting 101-level college

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texts on biochemistry and physiology, then seriously reading, marking, and taking notes on the material, as they would in college. Whether college-taught or self-learned, it is essential to have a studied background in biochemistry and physiology fundamentals.

Someone who claims to be a formulary herbalist but lacks at least an adequate 101-level biochemistry and physiology knowledge base may not fully understand how the above-described considerations for a formulary approach operate in relation to their biological effects in a real-time driven biological system. One thing is for sure: they will not adequately understand the nutrient and micronutrient aspects of herbalism without a working knowledge of biochemistry and physiology. The same largely applies to the various phytochemicals as well. The body's biochemical and physiological activities are where the rubber meets the pavement in herbalism.

Product Formats Regarding Formulary Endeavors

Formulating With Different Types of Product Formats: By *Product Format*, it is meant to imply, in the dietary supplements segment of the marketplace, the product format type that an herbal product is delivered through, meaning, is it a dry format (dehydrated, freeze-dried, powdered, etc., that includes HPGE (High Pressure Gas Extraction) processes), or a liquid format (in water, typically combined with alcohol or glycerin). The latter, liquid format, is generally divided into alcohol-based, using alcohol, and totally alcohol-free-based, using glycerin, liquid formats.

• **Formulating based on product format** is an area of formulary herbalism that is only considered by the most knowledgeable and accomplished formulators, especially the nuanced differences between the sub-formats of alcohol-based and glycerin-based formulating.

This is because many who formulate herbal blends do not consider how a product’s format can affect how the formula's actions and effects are conveyed to biological systems. These differences, especially between dry and liquid formats, are not just nuanced; they can be profound.

A great example is the active Cascarol constituent of Cascara Sagrada root bark. Because of its cascarol content, Cascara possesses strong laxative effects. The same is true for the sennosides in Senna pods.

These actives, when contained within the cellulose matrix of the whole unprocessed plant, are in a bound state to the cellulose, where processes of chewing or digestion are needed to reduce the binding effect of cellulose to the cascarol constituent enough to release some of it into the systems of the body. The problem is that, due to the digestive system’s lack of cellulose-digesting enzymes, a large portion of the cascarol constituents remains bound to the cellulose matrix of Cascara and passes through the digestive tract bound to the cellulose. This means that approximately 10% to 30% of the cascarol constituents are digestively extracted from the Cascara, depending on the available surface area of the dry whole herb that’s available to the

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digestive system and the digestive strength of an individual, which still leaves 70% to 90% of the active cascarol bound to and unreleased from the Cascara's cellulose matrix.

This is why dry-format laxative-based formulas are formulated with the laxative constituent-containing herb as the primary ingredient, with a greater amount of the laxative-driving herb, in this instance, Cascara, in a laxative herbal formula, because only a smaller percentage of the active cascarol constituents are going to be released from the Cascara's cellulosic matrix in the formula into the digestive tract.

However, it's a very different thing with a liquid format of the same herb, as an extract of that herb in a liquid herbal laxative-based formula. In liquid format, the extracted cascarol constituent of Cascara is removed from its cellulosic matrix and concentrated in the liquid herbal laxative-based herbal fluid. This means that since we are now dealing with the active cascara constituent content of the liquid-format extract in an unbound, freer form, less of the Cascara extract is needed or should be used in a laxative-oriented liquid herbal laxative formula, as opposed to a cellulosic-bound cascarol constituent in a dry-format laxative herbal formula.

With this in mind, can you imagine the consequences if a liquid laxative herbal formula were formulated on the same dominant Cascara-containing basis as a dry-format herbal laxative formula? The effects would range from very uncomfortable to dangerous. This aspect of herbal formulary work is essential to safe and appropriate liquid-format herbal formulary endeavors, and it applies to many other herbs with strong-acting constituents as well.

And finally, regarding this consideration, formulating dry-format products is often seen as an easier approach to formulating an herbal product. In dry-format formulations, herbs are not in a liquid state, so chemical reactions within the dry formula, such as complexation, oxidation, and pH dynamics, are not considerations. These are major reasons encapsulated and tableted dry-format herbal products are so popular with herbal manufacturers and sellers in the marketplace, along with the easier compounding and user convenience of dry-format preparations. However, as previously pointed out, dry-format herbal offerings have a major downside: their phytochemicals, components, nutrients, and micronutrients are bound and locked up in the cellulose matrix of the herbs, making them far less available to the body's biological systems. This fact means that the actual costs of dry-format herbal preparation to the consumer are higher, and the benefit value is much lower, given that so much of the anticipated benefits to be derived from such preparations end up going down the proverbial and into the literal toilet. Again, this is a problem because humans don't have the cellulose-digesting enzymes that herbivorous animals do, such as horses, cows, sheep, and goats. Hence, liquid-format products better suit human needs and are actually more economically viable.

• **Liquid-format alcohol-based formulas** are liquid herbal formulas that are typically tinctured with alcohol using passive mono-condition-based cold processes such as steeping, maceration, and percolation. Formulating alcohol-based liquid herbs is a fairly recent development, since alcohol-based liquid herbs have traditionally been used, on the whole, at the singles/simples

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level, meaning as single herbs. One reason alcohol-based herbs were rarely formulated is that alcohol distorts the taste of most liquid herbs; also, traditionally, alcohol-based liquid herb formulas, from a chemistry perspective, possess greater unwanted component complexing, accelerated oxidation, greater pH dynamic potential, and inversion of complexed heavier phytochemicals and components. Nevertheless, liquid-format alcohol-based herbs can be formulated, even multiplex-formulated.

However, liquid-format alcohol-based herbs are still affected by alcohol's intrinsic chemical effects, which denature, render inert, and drive oxidative reactions in many herb-derived constituents. These factors reduce stability, compromise continued constituent integrity, and can diminish therapeutic effects, leading to unwanted or unrealized effects. The intrinsic denaturing and inert-rendering effect of alcohol on many botanical constituents is a well-established chemistry fact.

• **Liquid-format glycerin-based formulas** are liquid herbal formulas that don't use alcohol at any time in their making. Glycerin-based liquid herbal products made in a mono-condition-based passive, cold-processing fashion, like tincturing methods, result in weak glycerite preparations, while those made through a mono-condition-based single-step, sustained-heat decoction process are typically overcooked and even scorched and darkened to make them appear more potent. However, the latter glycerin-based decoction process still denatures and renders the preparation inert, just as alcohol does to an herb's constituents.

In the multi-condition-based serialized, multi-step, multi-dynamic liquid herbal processing, glycerin, as an extractive solvent, yields remarkably potent, great-tasting botanical and mushroom/mycelium concentrates. And they are very stable, possessing the longest BBD (Best By Date) label listing in the industry – 6 years, which is a strong indicator of the extractive potential and preserved constituent integrity and synergies of this unique extractive technology.

From a formulary perspective, effective, synergy-driven liquid formulations are more compatible with, and conducive to, multi-condition applied glycerin-based herbal extract concentrates than alcohol-based herbal tinctures, especially when the multiplex approach and its formulaic synergies are considered in formulating multi-condition applied serialized, multi-step, multi-dynamic processed liquid herbal glycerite concentrates.

• **Liquid-format formulating differences** most specifically involve the different extractive potentials between alcohol-based mono-condition-based cold-process tincture methods versus a glycerin-based multi-condition-based serialized, multi-step, multi-dynamic process. The formulary aspects and specifics differ for each and require different considerations for the amount and ratio of herbs used in a fluid extracted formula recipe.

This is due, 1st, to an alcohol-based mono-condition tincture removing some different constituents than the glycerin-based multi-condition serialized extraction process, and 2nd, to the amounts, kinds, and states of the constituents extracted. This requires a different approach to

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formulating these two different kinds of fluid extracts. And as stated before, there are even more differences in formulating a liquid-format herbal formula than in that of a dry-format herbal formula, largely due to the dry-format's cellulose-binding/retaining factor for constituents, whereas liquid-format herbals have no cellulose considerations to have to deal with in their more complex formulary setting.

The point being, since we are addressing formulary differences in dealing with alcohol-based mono-condition herbal tinctures versus glycerin-based multi-condition serial-processed herbal concentrates, and given the fact that glycerin does not denature, render inert, or drive oxidation of the liquid herbs it is part of, it means that, on the whole, potent herbal glycerites, as seen with the multi-condition-based serialized, multi-step, multi-dynamic processed glycerin-based herbal concentrates, have been shown to result in formulations that possess a high level of formulaic synergies.

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