Endobiogeny and Aromatherapy

Jean Claude Lapraz, MD, Kamyar M. Hedayat, MD
and Dan Kenner, PhD, LAc

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Introduction

Clinical Aromatherapy offers many advantages in the care of patients, including low dosing requirements and multiple administration routes, such as inhalation, topical, oral and rectal. Contemporary clinical Aromatherapy can be traced to the empirical work of Dr. Jean Valnet and the scientific work of his students, Christian Duraffourd, MD and Jean Claude Lapraz, MD, among others.

Clinical Aromatherapy can lead to very satisfactory symptomatic relief for many patients, and much of the literature to date has focused almost exclusively on symptomatic treatment (Buckle, 1999; Hedayet, 2008; Hueberger et al, 2004 and 2006; Tildesley et al, 2003 and 2005; Lin et al, 2007; Goel et al, 2005; Haze et al 2002). For clinical aromatherapy to advance to a precise methodology, a systematic approach is needed in order to evaluate the totality of a patient's illness. The Endobiogenic method, developed by Drs. Duraffourd and Lapraz over the last 40 years, presents such an approach. The original work was with essential oils, and essential oils still play an important role in this method (Duraffourd and Lapraz, 2002).

Endobiogeny

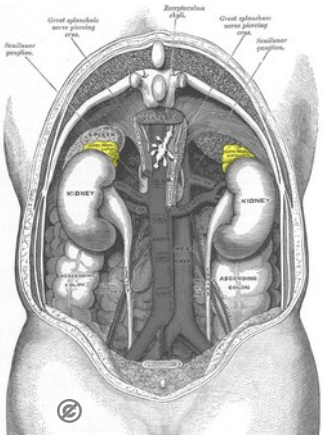
Endobiogeny is a systems approach to clinical practice that takes into account the entire system of the body: the individual organs, cellular and metabolic activity, in and of themselves as well as in relationship to each other and to the global functioning of the person. It is firmly rooted in modern scientific research in endocrinology, physiology and pathology (Lapraz and Hedayat, 2013). Endobiogeny is the integrative study of the structural mechanisms of regulation of the human body during homeostasis as well as its functional response to internal and external stressors, such as infectious pathogens and emotional stress.

The Endobiogenic method evaluates the qualitative and quantitative state of the body and its internal milieu: the biological 'terrain' in which the body operates. The Endobiogenic treatment strategy is to re-establish the pre-illness terrain of the individual's constitution. When this is not possible, then we seek to support buffering capacity and help the organism achieve the highest level of homeostatic function. The buffering capacity is the adaptive mechanism that the body has to deal with when sudden demands are placed on it. For example, the body stores bicarbonate and can quickly deal with some acid build up in this way. Another example is that 98% of most hormones are bound and unusable, staying in a back up state attached to carrier proteins. However, during times of great physiologic demand, these hormones (like T3) can be quickly released. Symptoms of any disease are always regarded in the context of the global functioning of the entire organism.

The Endobiogenic method consists of three arms. The first is a detailed history, starting with prenatal history, childhood characteristics, family history, hereditary factors, etc. A timeline is created that maps out various important physical and emotional traumas which are then related to the onset and progression of various symptoms.

The second arm is a detailed physical examination. The Endobiogenic examination is quite comprehensive and unique in many ways. It is based on the observation that certain neurologic and endocrine relationships can be seen and palpated on the human body. For example, dopamine is known to affect the rapidity of spontaneous blinking (Karson, 1989). A patient who complains of anxiety and blinks a lot has elevated dopamine. An essential

oil with neuro-physiological dissociative properties, such as Ylang Ylang (*Cananga odorata*), may be indicated for such a patient. (A neuro-physiological dissociative is an agent that increases mental activity while reducing physiological signs of stress, such as blood pressure and heart rate.) Recent clinical studies showed inhalation and transdermal applications of Ylang Ylang increase a state of calm-focus (alpha waves) while reducing peripheral blood pressure (Hongratanaworakit and Buchbauer, 2004 and 2006). As another example, cortisol causes a fat pad to develop over the zygomatic arch, among other places. A patient with symptoms of stress and fatigue with such a fat pad may benefit from a neuro-endocrine balancer, a product that supports adrenal activity while reducing central nervous system and hormonal stimulation of the adrenal gland. Clary Sage (*Salvia sclarea*) is a good example of an essential oil suited to the terrain of such a person (Park and Lee, 2004).



Adrenal glands (in yellow) Wikimedia Commons by Roxbury-de

The third arm of the endobiogenic approach is a biological modeling system, the Biology of Functions. The Biology of Functions is a biological modeling tool that relates serum biomarkers through direct and indirect ratios and products. It allows for both a quantitative and qualitative assessment of the terrain of the patient and can greatly enhance a clinician's treatment of the true cause of the patient's illness. Because of the mathematical nature of the indices, a patient's status can be assessed objectively over time (Lapraz and Hedayat, 2013).

With a proper assessment of the terrain, the Endobiogenic practitioner is able to apply a rational phytotherapeutic regimen. It is our belief that the use of medicinal plants and their various extracts—including essential oils—is the most efficient method for regulating imbalances. However, the Endobiogenic method also uses other remedies, including the judicious use of pharmaceutical products where indicated by the severity of the disease and/or the insufficiency of the buffering capacities of the patient.

Basic principles

Do no harm: This is the motto of any treatment system, including the Endobiogenic system. The type of treatment chosen, the route of delivery and the dose all depend on the severity of the illness, co-morbidities and the global state of the patient's terrain.

Symptomatic treatment: Symptoms are never ignored and sometimes require urgent attention over other considerations. However, once urgent symptoms have been addressed, the fundamental factors of the terrain should be addressed as well.

Correct the terrain: This is the key therapeutic element in treatment of any chronic disease and to prevent recidivism of acute disorders. The terrain is the functional expression of one's genetic heritage. It is a dynamic and continuous interplay between the structural and functional elements of the body, of the basal and adaptive capacities and functioning, and of the inductive and reactive elements against internal and external aggressions. An important concept of correcting the terrain is to ensure proper drainage of the emunctories.

Drainage: Emunctories in the endobiogenic concept include all organs that excrete. Emunctories serve many purposes, such as aiding in digestion, detoxification and vitamin production. Among the emunctories, the most crucial for proper physiologic activity are the liver, pancreas and gallbladder because of their link with metabolism. Among the drainage pathways, the lymphatics play an important role as well.

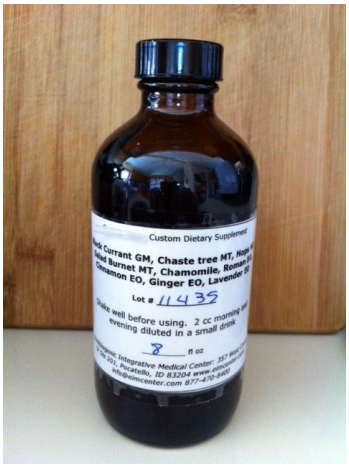
When an organ is over-worked, it can experience toxic congestion from an accumulation of metabolic waste products. Elevated alpha-sympathetic activity can result in vascular congestion of organs. In either case there is decreased functionality of the organ due to this congestion (Duraffourd and Lapraz, 2002).

The process of drainage is applied strategically to affected organ systems. For example, when there is frequent upper respiratory illness, the pancreas is implicated in a general sense and the local lymphatic nodes are implicated in a loco-regional sense. In such an illness, the cervical lymph nodes must be drained in order for the immune system

to function properly, and the pancreas should be drained in order to allow for the terrain that leads to such an illness to be corrected. Drainage of the liver and bile ducts is essential for many conditions, especially when there is an augmented need for estrogens or thyroid hormones in response to metabolic demands of the body. Drainage of the kidneys, pancreas, large intestine and skin can all come into play as part of a therapeutic plan.

Emunctories and essential oils

The Endobiogenic method uses the most efficient Galenical forms, e.g. natural forms rather than synthetic components, when addressing various illnesses. In addition to the use of gemmotherapies and mother tinctures, we have found essential oils to be effective for drainage. Note that many of the essential oils that are effective for drainage are also effective for treating both infectious and non-infectious disorders of the organs that they drain. This reconfirms the complexity of phytotherapeutic elements as well as their great efficiency in treating the terrain and symptoms simultaneously. Below are listed the most important emunctories and essential oils that, in our experience, are effective in drainage.



Tincture and essential oil blend
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Liver: Sage, Dalmatian (*Salvia officinalis*) (Lima et al, 2004), Carrot seed (*Daucus carota*), Marjoram, Sweet (*Origanum majorana*) (el-Ashmawy et al, 2005), and Black seed (*Nigella sativa*) pressed oil (Lee et al, 2003).

Pancreas: Cinnamon bark and leaf (*Cinnamomum zeylanicum*) (Talpur et al, 2005), Oregano (*Origanum vulgare*) (Talpur et al, 2005), Rosemary (*Rosmarinus officinalis*) (al-Hader et al, 1994), Eucalyptus (*Eucalyptus globulus, E. radiata*), Herb Robert (*Pelargonium robertum*), Juniper berry (*Juniperus communis*).

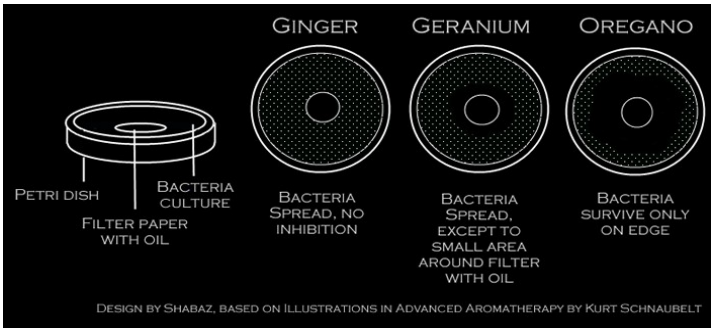
Gallbladder: Rosemary (*Rosmarinus officinalis*), Peppermint (*Mentha* x *piperita*) (Goerg and Spilker, 2003), Caraway (*Carum carvi*) (Goerg and Spilker, 2003).

Kidneys: Juniper berry (*Juniperus communis*) (Stanic et al, 1998; Ripka, 1964); Lavender (*Lavandula angustifolia*); Angelica (*Angelica archangelica*) (Sarker and Nahar, 2004); Birch tar (*Betula pubescens*); Rosemary (*Rosmarinus officinalis*); Fennel (*Foeniculum vulgare*).

Lymphatics: Bay Laurel (*Laurus nobilis*), Cypress (*Cupressus sempervirens*), Juniper berry (*Juniperus communis*).

Endobiogenic approach to the terrain and the antimicrobial effects of essential oils

The work of one of the authors (JCL) and C. Duraffourd, MD in the 1970s and 1980s, with regard to the antimicrobial effects of essential oils, yielded important observations with respect to the importance of the terrain when determining which essential oils to use when treating a patient (Duraffourd and Lapraz, 2002). They developed an aromatogram using disks impregnated with essential oils to evaluate the efficacy of various essential oils and their chemotypes against various bacteria, both gram positive and negative.



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http://ingridnaiman.com/subscription_lists/health_emails/petri_dishes.html

From those studies, they concluded two key points. First, the antimicrobial activity of an essential oil results from a synergistic interplay of all its compounds *in toto* and its interaction with the terrain of the patient. Second, the categorization of essential oils as "gentle" or "strong" for internal use, based on the concentration of functional groups and their topical effects, is a false notion.

They compared the effects of geraniol against two essential oils containing geraniol: Thyme (*Thymus vulgaris* ct. geraniol) and Rose Geranium (*Pelargonium asperum*) with a high concentration of geraniol not typically found*. Table 1 summarizes the findings, with the number of crosses indicating the strength of activity against that organism as noted by the degree of the zone of inhibition.

Category of Bacteria	Species of Bacteria	Geraniol (100% geraniol)	Geranium (42% geraniol)*	Thyme (22% geraniol)
Gram Negative	E. coli	++	0	++++
	Pseudomonas	++	+	+++
	Klebsiella	++	+++	+++
	Enterococcus	++	0	0
Gram Positive	Staphylococcus	++	+++	0
	Streptococcus	++	+++	+

Table 1. Antimicrobial activity of the compound geraniol as an isolated compound vs. geraniol chemotypes of Thyme & Geranium

*Editor's note: The author's acknowledge that the Geranium used in their study has an unusually high geraniol content. The IJPHA was able to locate a GC/MS for a Geranium oil (Rwanda) with a >50% geraniol content.

While 100% geraniol had moderate efficacy against a broad spectrum of gram positive and gram negative organisms, Thyme, with its lower content of geraniol, had more activity against gram negative organisms than pure geraniol or Geranium essential oil, both of which had higher contents of geraniol. Thus, a particular compound in and of itself does not sufficiently explain the antimicrobial activity of essential oils.

Initially, when we wished to treat infectious diseases in our patients, we would first determine the optimal essential oil from the aromatogram. Once we established the appropriate essential oil(s) to treat our patients' infections, we found that the dose needed to effectively achieve resolution of infection was much lower than predicted by the Minimum Inhibitory Concentrations (MIC) determined by our *in vitro* studies. For example, we found that the *in vivo* MIC for a typical adult is $1x10^{-4}$ g of essential oil per ml of body fluid. Assume that a patient would receive one standard US drop of an essential oil per dose or 0.05 g. Diluting this in 40 liters of total body water, the concentration of a single dose of essential oil would be 1.25×10^{-5} g/ml of fluid--well below the MIC. The antimicrobial activity *in vivo* occurs due to a change in the terrain thanks to drainage, detoxification and neuro-endocrine alterations.

As a result, we abandoned this method all-together in favor of an approach in which, amongst the hundreds of essential oils with appropriate anti-microbial activity, the one(s) most adapted to the endobiogenic terrain of the patient was chosen. In the end we concluded that the antimicrobial activity of essential oils is not based solely on its *in vitro* actions, but also on the terrain whether through immunomodulation, drainage, or via neuroendocrine and genetic activity. The doses are too low to be directly antimicrobial except for cases of direct topical application of essential oils on a skin infection or transdermal absorption for intra-articular infections. When using essential oils to treat infections, we find that a combination of less toxic essential oils, used internally at regular intervals, is the most effective therapeutic approach.

Chemotypes can be helpful for particular considerations, such as local anatomical sensitivities unique to a patient. For example, one may wish to use *Thymus vulgaris* ct. linalool in a young child to avoid the mucoirritant effects of high thymol concentrations. However, a rational endobiogenic selection of an essential oil typically results in a relatively low and sufficiently diluted dose so that it would be unlikely to irritate the mucosa. Regardless, one should avoid a tendency towards "aromachemistry," which is simply another form of reductionist thinking. Aromachemistry is the tendency to attribute the global effects of essential oils 'solely' to their chemical content (Schnaubelt, 1999) without regard for their impact on the terrain of the individual. When treating patients internally and considering their terrain, the particular chemotype of an essential oil is not so important as is matching the global effects of essential oils to the individual patient.

Consider a patient with a severe, acute infection with an elevated alpha-sympathetic response (cold hands and feet, rapid breath rate, dilated pupils, diminished appetite). We have found that Lavender essential oil, considered a "mild" essential oil because of its high alcohol functional groups, is more effective when used internally for this type of patient than is an essential oil rich in phenols, such as Savory (*Satureja montana*). Savory, with its sympathomimetic properties, can exacerbate the elevated alpha-sympathetic activity of such a patient and lead to a hyper-catabolic state.

In the case of an infection, the body's immune system is stimulated by the autonomic nervous system and managed by the endocrine system. The immune system is ultimately what manages the infection. The internal use of essential oils is so diluted that its direct antimicrobial effects are not in play. It is the effect of the essential oils on the terrain, i.e. drainage of emunctories, facilitation of neuroendocrine activity and stimulation of immune activity, that actually manages the infection.

Conclusion

Endobiogeny is a systems-based form of medicine developed over the last 40 years by Drs. Duraffourd and Lapraz. It is a true form of integrative medicine in that it integrates the various elements of the patient's terrain in a coherent manner that respects the globality of the human being. The therapeutic approach to treatment is a rational one based on the proper assessment of the Endobiogenic terrain of each individual. It includes many forms of treatment, including essential oils, based on numerous considerations such as the severity of the disease, integrity and strength of endogenous buffering and tamponade systems, and the possibility of spontaneous recovery using natural vs. synthetic treatments. The developers of the Endobiogenic treatment have a long history of use of essential oils and have contributed through their work to a precise methodology to their selection and application in various illnesses.

Note: The *Societé Intérnationale de Médecine Endobiogénique et Physiologie Intégratif* (www.simepi.info) and the American Society for Endobiogenic Medicine (www.endobiogeny.com), in French and English respectively, offer a two year fellowship in Endobiogenic Medicine, including the clinical use of essential oils. Please contact them for more information regarding 2013 and 2014 fellowship opportunities.

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Jean Claude Lapraz, MD, is the President of the Société Internationale de Médecine Endobiogénique et de Physiologie Intégrative (SIMEPI) in Paris, France. Dr. Lapraz, a medical doctor, is a pioneer in Aromatherapy. He created a curriculum for natural healing, Clinical Phytotherapy, which is taught worldwide to doctors. He has researched and published a great deal on essential oils. Together with Christian Duraffourd, MD, they developed a new approach to medicine-Endobiogenics .

Kamyar M. Hedayat, MD, is the President of the American Society of Endobiogenic Medicine and Integrative Physiology (ASEMIP), San Diego, California, USA. Dr. Hedayat is a Stanford-trained critical-care physician and an internationally published scholar on medical ethics. As an international lecturer and recognized authority on medical Aromatherapy, Dr. Hedayat has published extensively on the use of plants, nutritional supplements and essential oils for various diseases. The ASEMIP offers a fellowship program in the study of Endobiogeny.
president@endobiogeny.com

Dan Kenner, PhD, LAc, is the Director of External Publications of the American Society of Endobiogenic Medicine and Integrative Physiology (ASEMIP), San Diego, California, USA. Dan Kenner is a writer and consultant in alternative healthcare with 30 years of clinical experience in both Oriental and Naturopathic Medicine. He is author of six books on natural health including *Whole-Body Healing for Cancer Recovery: Seven Steps to Support Treatment, Boost Immunity and Build Better Health*. He is developing a video-documentary series called Alternative Medical Breakthroughs from Around the World.