



A Perspective for Research, Education, and Integration:

An Introduction to dōTERRA's Scientific Advisory Board

Essential oils are not a new concept; however, they are garnering more attention as people are seeking personalized and natural solutions for wellness in an ever-changing atmosphere of rising health care costs, super bugs and an overall growing concern of filling our bodies with synthetic and chemical properties. dōTERRA is redefining the use of essential oils throughout the world. We are dedicated to sharing the life-enhancing benefits of essential oils through education, research and experience. It is our mission to unite both health care professionals of traditional and alternative medicine, as well as to encourage further study and application of therapeutic-grade essential oils in modern health care practices.

Research, Educate, and Integrate

dōTERRA has an ongoing interest in pursuing research into essential oils to enhance our understanding of the powerful benefits they provide. For this purpose, we have assembled a board of scientific advisors uniquely qualified to offer influential expertise from a variety of areas of health. The members of the dōTERRA Scientific Advisory Board are appointed because of their leadership and experience in their respective professional fields, as well as their desire to learn, research, and educate about essential oils.

One of the various roles of the Scientific Advisory Board is to give support and explanation of the science behind dōTERRA's CPTG Certified Pure Therapeutic Grade® essential oils and products.

Board members will be crucial in bringing forth new research, as well as helping to interpret, offer opinion and share research discoveries with the intent to educate. The board currently offers expertise in quality, integration into mainstream medicine, and the microbiological aspects of essential oils.

dōTERRA's Scientific Board is very unique. Each board member has chosen to dedicate their time and abilities specifically because of their enthusiasm for essential oils, as well as their steady interest in promoting the health of others. The members of the board will change from time to time as dōTERRA continues to grow and adapt to the demand for essential oils in the healthcare field. The Scientific Board will be instrumental in providing validation for the use of essential oils in healthcare and everyday use.



Introducing dōTERRA's Scientific Advisory Board

Dr. David K. Hill

Chief Medical Advisor, dōTERRA® Intl. LLC
Chairman, Scientific Board

Extensive experience qualifies Dr. Hill to stand at the head of a new era of education and understanding of natural medicine and essential oils. He remains on the cutting edge of technology by immersing himself in research, and is dedicated to educating and empowering others to take control of their own health.

For nearly a decade Dr. Hill worked locally as a physician in family practice to provide valuable essential oil insight into the traditional protocols and practices of modern medicine.

Dr. Hill is well recognized in the field of integrative medicine and essential oils, and as such he has been invited to interact with a number of large, established hospitals including Beth Israel and Vanderbilt University Medical Centers, consulting with them on ways to integrate CPTG Certified Pure Therapeutic Grade®* essential oils into modern medical practice.

Throughout his career, Dr. Hill has had the privilege of working with numerous distinguished medical professionals dedicated to ongoing essential oil research and education. The need for a collective force to provide credible scientific information is greater than ever as essential oil use is becoming main stream. Questions have begun to arise within the traditional healthcare model as to the credibility of essential oils as a healing mechanism. For this purpose, Dr. Hill has assembled a community of distinguished experts encompassing essential oils, human longevity and wellness. Members of the board offer technical consultation during their research, development, and application of dōTERRA essential wellness products and programs. It is our mission to educate the general public with current

and future research on meaningful contributions for education and integration of essential oils into health, scientific and personal use environments.

*See additional reference section for detailed information on the CPTG® standard.

Integration

dōTERRA Scientific Advisory Board seeks to bring together health care professionals of traditional and alternative medicine to encourage further study and application of therapeutic-grade essential oils in modern health care practices.

Dr. Paul Winterton, M.D.

Paul W. Winterton is a Board Certified Orthopedic Surgeon. He earned his medical degree from Harvard Medical School in 1993 and completed his Orthopedic Surgical Residency at the Mayo Clinic in 1998. Following residency, he completed two fellowships at The Institute For Bone and Joint Disorders in shoulder and knee reconstructive surgery/sports medicine, as well as foot and ankle reconstruction in Phoenix, Arizona.

Following his formal orthopedic training, Dr. Winterton opened Southtowne Orthopedics and The Utah Cartilage and Ligament Repair Center in Salt Lake City in 1999. He has served as orthopedic consultant for the Utah Jazz NBA franchise as well as team physician for the IHL Utah Grizzlies professional hockey team.

Currently, Dr. Winterton serves on the Board of Councilors for The American Academy of Orthopedic Surgeons. For a number of years he has advocated the integration and practical use of essential oils in his practice. As a member of the Scientific Advisory Board for dōTERRA, he is currently researching the basic science, cell biology, and clinical application of essential oils. He is a strong proponent of the practical use of essential oils and dietary supplements in the home, as well as in the traditional western medical clinical setting, particularly with regard to bone and joint well being.

Tonya McBride, R.N., Charge Nurse

Tonya has been a practicing Registered Nurse since 2001, earning her degree from Tennessee State University, with earlier experience as an EMT in 1996. Her experience is primarily in emergency and critical care nursing. She currently is a Charge Nurse in the Adult Emergency Department at Vanderbilt University Medical Center in Nashville, TN. Tonya has always had an interest in natural health care alternatives but quickly became immersed when introduced to essential oils in 2008, and has been a dedicated user, promoter, and educator ever since. She has experienced the healing properties and the healthful benefits of incorporating certified pure therapeutic grade essential oils into everyday living. Tonya is a strong proponent of self-care, disease prevention, and taking responsibility for your own wellness. One of her goals is to contribute to the integration of traditional and alternative health modalities. She is involved in leading a wellness initiative in the Emergency Department at Vanderbilt Medical Center and is involved in nursing research incorporating the use of essential oils in the hospital setting.

Teresa Sturges, R.N., Charge Nurse

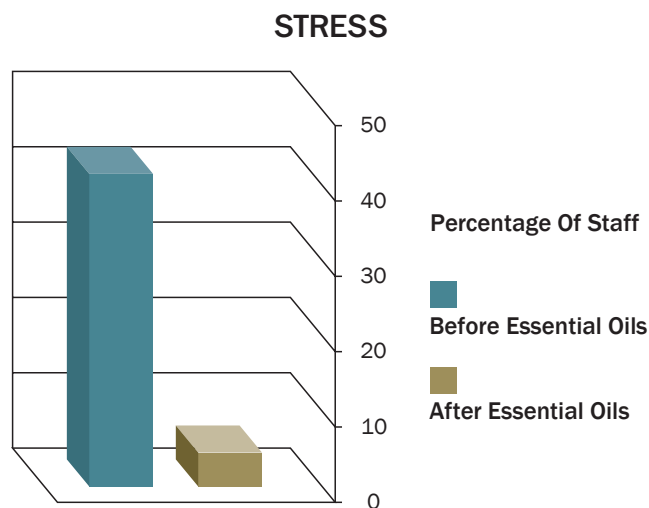
Teresa has been a registered nurse for over 10 years with the majority of her career in Emergency Nursing. She is currently a charge nurse in the Emergency Department at Vanderbilt University Medical Center in Nashville, Tennessee. She is passionate about health and wellness which has lead to her desire to learn, use, and share dōTERRA essential oils, Lifelong Wellness Supplements, and Skin Care Products with others. She and Tonya McBride, RN were pioneers in the initiation of a Wellness Committee within the Vanderbilt's Emergency Department which incorporates dōTERRA essential oils to enhance staff health and wellness. Teresa is an advocate for the use of dōTERRA essential oils integrated into the hospital setting to be studied for patient's response and outcomes.

dōTERRA® maintains a partnership in ongoing research with Vanderbilt University. Vanderbilt University Medical Center is a level I trauma center that has over 55,000 adult emergency visits per year. The Emergency Department is a volatile, high stress environment that can lead to fatigue and feeling of being overwhelmed for staff members. For the past few years the Vanderbilt's Wellness Committee has conducted research on the effect the essential oils have on staff members. The purpose of the study was to determine if enhancing the environment by diffusing CPTG Certified Pure Therapeutic Grade® essential oils into the air will increase energy and decrease stress levels of staff working in the Emergency Department.

Citrus oils including lemon, wild orange, lime, and Citrus Bliss were intermittantly diffused in the air. A pre and post implementation of a self-reported structured survey using a 5-point Likert scale was conducted to indicate staff perceptions of stress following implementation of cold air diffusion of dōTERRA® Certified Pure Therapeutic Grade essential oils. The findings are reported in proportions.

Before the use of essential oils, 41% of staff members surveyed felt work-related stress very often. After the use of essential oils, only 3% felt work related stress very often. Interestingly, stress experienced outside the Emergency Department did not seem to change. The self-reported feelings of being overwhelmed changed from 25% very often before implementation to 2% after implementation. Feelings of being well equipped to handle stressors at work changed from 13% very often before implementation to 58% after implementation. Perceptions of optimal energy level went from 33% before implementation to 77% post implementation.

From this project a 36% decrease in work related stress was reported by the ED healthcare workers. A reduction of feeling overwhelmed with reports of greater ability to handle stressors and increased energy are described. Our experience details less stress is reported after diffusion of therapeutic essential oils.



The Wellness Committee is currently in the process of publishing their study. They are also moving forward with implementing essential oils use into patient care. Additionally, there was a segment on the WZTV Fox17 News recently regarding this research (<http://www.youtube.com/watch?v=PCEsulMB5Q>).

Research

Many traditional therapies are known to reduce aspects of immunity. Modern research has illustrated that essential oils are both anti-infectious and immune stabilizing. For example, recent research from the University of Oklahoma using dōTERRA's On Guard® Protective Blend, indicates this unique blend effectively reduces influenza virus (H1N1). Research is necessary at this time for validation of essential oils as a powerful contributor to overall health.

Nicole Stevens, MSc

Nicole Stevens is an essential oil enthusiast with a professional desire to increase the credibility and the scientific understanding behind natural products. She has been researching the various properties of essential oils for much of her career.

Nicole earned her undergraduate and Master's degrees at Brigham Young University. Her Master's Thesis was entitled "Bioassays to Determine Anti-Cancer Activity of Essential Oils." For that project, nearly seventy essential oils and oil blends were tested against five different types of cancer in vitro.

In 2003, Nicole began working at the UNLV Cancer Research Center and completed a project looking at the possibility of using essential oils in a process called photodynamic therapy. This is a procedure that uses targeted photosensitizing chemicals and specific wavelengths of light to destroy cancer cells.

From 2009 – 2010, Nicole worked at the University of Utah. There, she completed a study analyzing the effectiveness of dōTERRA® essential oils against various microbial pathogens including Staphylococcus aureus, Escherichia coli and Klebsiella pneumonia.

Below is an abstract of Nicole's research on the antimicrobial properties of essential oils.

Preliminary in vitro studies to investigate antibiotic potential of some essential oils from dōTERRA® International, LLC.

Research conducted under agreement with University of Utah, funded by dōTERRA® International, LLC.

Abstract

Many essential oils have been studied for their antibiotic capabilities. Because the composition and potency of essential oils vary among products, it is instructive to ascertain an individual product's performance in standard, anti-microbial laboratory tests. In this study, nine essential oils (basil, cinnamon,

clove, lemon, melaleuca, oregano, rosemary, thyme, and wild orange) and two proprietary essential oil blends (On Guard and Purify) from dōTERRA® International LLC were evaluated for their antimicrobial potential against six strains of microorganisms (Escherichia coli, Staphylococcus aureus, Salmonella enteric, Klebsiella pneumonia, Pseudomonas aeruginosa and Candida albicans). Kirby-Bauer tests and tube dilution tests were used as in vitro models. Of the essential oils studied, all showed at least some inhibition of at least one microorganism and ten out of eleven showed inhibition of multiple microorganisms at multiple dilutions. The most potent oils were oregano, thyme, and cinnamon—these oils showed some inhibition even in highly diluted solutions. Future studies are recommended, including more tube dilution tests of the oils in this project, and screening of additional oils and microorganisms.

Jennifer Eddins, SM(ASCP)

Jennifer is certified as a Specialist in Medical Microbiology with over 21 years experience in the medical field, as well as 16 years experience with fungal air sampling. She graduated from Colorado State University with a bachelor degree in Microbiology. Jennifer is the lead microbiologist at a local hospital and actively participates in best practice methods for helping find the most effective ways to care for patients. She is currently researching the effects of On Guard® on MRSA isolates and also comparing them to the efficacy of Melaleuca to MRSA.

Jennifer is conducting ongoing research with dōTERRA's On Guard® essential oil blend against Methicillin-resistant Staphylococcus aureus (MRSA). What is MRSA? MRSA is a strain of staph bacteria that



has become resistant to the antibiotics. Most MRSA infections occur in people who have been in hospitals or other health care settings, such as nursing homes and dialysis centers. When acquired in a health care setting, it is known as health care-associated MRSA (HA-MRSA). HA-MRSA infections typically are associated with invasive procedures or devices, such as surgeries, intravenous tubing or artificial joints.

Another type of MRSA infection can occur in the general community setting among typical, healthy people. This form called community-associated MRSA (CA-MRSA), often begins as a painful skin boil. It's spread by skin-to-skin contact. People at risk generally include groups such as high school wrestlers, child care workers and people who live in crowded conditions.

The research with On Guard® protective blend is so critical because more and more people acquire infections due to bacterial diseases that can be inhibited using essential oils. Jennifer Eddins' findings on the efficacy of On Guard are remarkable. MRSA isolated from patient cultures were tested against both Melaleuca and On Guard in the vast majority of the samples. On Guard had a larger zone size of inhibition than melaleuca. The zone size is comparable to the zone sizes used for the antibiotic vancomycin. Vancomycin is commonly used to treat non-superficial infections but is a very slow acting killer.

While the study is still ongoing, it does appear that there can be a limit of effectiveness of the oils and increasing the volume will not increase the effect it has on the organism. On Guard had clear zones around each MRSA isolate, which means that no colonies grew in the inhibition area around the disk. Some of the isolates around the Melaleuca had a few colonies growing in the inhibition area around the disk. This leads to a conclusion that the inhibiting properties of the On Guard blend are more effective at killing the MRSA bacteria and not just inhibiting it. It also suggests that there is a lesser chance of the organisms to produce a resistance mechanism against On Guard.

For surface cleaning, a 32 ounce spray bottle was filled with tap water and 3 drops of On Guard and mixed thoroughly. Sterile petri dishes were sprayed with the On Guard solution and allowed to dry. Next a MRSA isolate is swabbed on each dish and allowed to dry. The results have shown that when using a spray solution of On Guard the organism is not viable after contact with the surface for up to 7 days. Jennifer will be very influential in additional research that will follow for validation of the use of CPTG Certified Pure Therapeutic Grade® essential oils in the medical field.

Additional Research and References

Oklahoma University conducted research using dōTERRA's On Guard® Protective Blend.

Protective essential oil attenuates influenza virus infection: an in vitro study in MDCK cells.

Wu S, Patel KB, Booth LJ, Metcalf JP, Lin HK, Wu W.

BMC Complement Altern Med. 2010 Nov 15;10:69

Abstract

BACKGROUND:

Influenza is a significant cause of morbidity and mortality. The recent pandemic of a novel H1N1 influenza virus has stressed the importance of the search for effective treatments for this disease. Essential oils from aromatic plants have been used for a wide variety of applications, such as personal hygiene, therapeutic massage and even medical practice. In this paper, we investigate the potential role of an essential oil in antiviral activity.

METHODS:

We studied a commercial essential oil blend, On Guard®, and evaluated its ability in modulating influenza virus, A/PR8/34 (PR8), infection in Madin-Darby canine kidney (MDCK) cells. Influenza virus was first incubated with the essential oil and infectivity in MDCK cells was quantified by fluorescent focus assay (FFA). In order to determine the mechanism of effects of essential oil in viral infection inhibition, we measured hemagglutination (HA) activity, binding and internalization of untreated and oil-treated virus in MDCK cells by flow cytometry and immunofluorescence microscopy. In addition, the effect of oil treatment on viral transcription and translation were assayed by relative end-point RT-PCR and western blot analysis.

RESULTS:

Influenza virus infectivity was suppressed by essential oil treatment in a dose-dependent manner; the number of nascent viral particles released from MDCK cells was reduced by 90% and by 40% when virus was treated with 1:4,000 and 1:6,000 dilutions of the oil, respectively. Oil treatment of the virus also decreased direct infection of the cells as the number of infected MDCK cells decreased by 90% and 45% when virus was treated with 1:2,000 and 1:3,000 dilutions of the oil, respectively. This was not due to a decrease in HA activity, as HA was preserved despite oil treatment. In addition, oil treatment did not affect virus binding or internalization in MDCK cells. These effects did not

appear to be due to cytotoxicity of the oil as MDCK cell viability was only seen with concentrations of oil that were 2 to 6 times greater than the doses that inhibited viral infectivity. RT-PCR and western blotting demonstrated that oil treatment of the virus inhibited viral NP and NS1 protein, but not mRNA expression.

CONCLUSIONS:

An essential oil blend significantly attenuates influenza virus PR8 infectivity in vitro without affecting viral binding or cellular internalization in MDCK cells. Oil treated virus continued to express viral mRNAs but had minimal expression of viral proteins, suggesting that the antiviral effect may be due to inhibition of viral protein translation.

Despite antibiotics not being able to treat the influenza virus, results show On Guard® Protective Blend reducing this virus by up to 90%. On Guard™ plays an important role in keeping families well without harsh side-effects.



Certified Pure Therapeutic Grade® (CPTG)

Sourcing

Knowing which of the many different species of a given plant will provide the most profound therapeutic health benefits is the first step in producing a Certified Pure Therapeutic Grade (CPTG®) essential oil. Relying on the expertise of botanists, chemists, and wellness practitioners, botanical materials are carefully selected for their natural concentrations of active aromatic compounds.

Nurturing plants in the most favorable environment and carefully harvesting and transporting plant material for processing ensures an optimal yield of pure and potent essential oils. Spanning the continents of the globe, dōTERRA's exclusive network of growers and harvesters are experts at cultivating plants specific to the essential oil industry.

Extraction

Extracting essential oils, also called aromatic compounds, from plants is a delicate and complex process. The composition of essential oils make them very vulnerable during extraction because they evaporate easily and can be compromised. The careful extraction of essential oils is as much an art from as it is a science.

Essential oils are most often extracted from plants through distillation, a process in which steam is circulated under pressure through plant material, thus liberating the plant's aromatic compounds into the steam. As the steam cools, the mixture condenses and the essential oils are collected in their pure form. Too little heat and pressure will not release the aromatic compounds of a plant, while too much can alter the delicate chemical composition and potency of the extract.

Testing

Each batch of CPTG® essential oils is subjected to independent GC/MS (gas chromatography/mass spectrometry) testing to ensure both purity and potency. CPTG® testing standards ensure dōTERRA's 100% pure essential oils are free of synthetic, harmful, or foreign constituents such as heavy metals, pesticides, or other non-aromatic plant compounds.

dōTERRA essential oils are also tested for potency to ensure each extract contains the complex blend of aromatic compounds, at potent levels, naturally occurring in the source plant. While two essential oil extracts may be pure, they may differ dramatically in their active constituents depending on plant selection, growing and harvesting methods, and distillation techniques. Ensuring correct composition of a CPTG® essential oil requires both precise testing and accurate interpretation of results by credentialed chemists with expertise in essential oils.

Application

dōTERRA's commitment to providing CPTG® essential oils to the world includes teaching and facilitating the responsible use of essential oils in health applications. Essential oils have been used for centuries in many cultures for their medicinal and therapeutic benefits and have profound health benefits in the hands of experienced users.

dōTERRA works closely with healthcare professionals of traditional and alternative medicine and collaborates with universities and other research institutions to encourage continued study and application of essential oils in modern healthcare practices. These activities are further enhanced by dōTERRA's global network of Independent Product Consultants who contribute to an ever increasing user knowledge of the many wellness applications of CPTG® essential oils.



Supplementary Essential Oil Research Compendium

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