

ISSN 2167-8596

THE INTERNATIONAL JOURNAL OF PROFESSIONAL HOLISTIC AROMATHERAPY

Volume 12 Issue 4 Spring 2024

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Case Study: *Tinea versicolor* and Pineapple Myrtle®

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Image of *Tinea versicolor*
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Description of the case

The client is a 54-year-old male, 5' 11.75", 177 lbs, presenting with a rash on his upper to mid back on August 6, 2022. The client first noticed the rash starting on his back at the end of February 2022. Since then, the rash has slowly spread to cover most of his upper and mid back. The rash appears as small circles with a lighter pigmentation than the surrounding skin. The rash is not raised, nor are the borders of the circles, but there is a slight scaling of the skin. Some of the circles have connected to form larger affected areas. The skin inside the affected areas can also appear slightly pink after sun exposure (Images 1-3).

The client reports that the rash does not hurt or feel inflamed but occasionally itches. The client also reports that he has not experienced this rash previously, but his girlfriend has experienced this same rash on and off for most of her adult life. The client shared that he thought the rash would clear up on its own as the weather warmed up and his skin was exposed more to the sun. However, sun exposure and time in the pool over the summer worsened the rash. The client has not seen a dermatologist but has seen his primary care provider and gastroenterologist during these months. Neither provider was concerned about the rash nor gave a formal diagnosis. The client routinely uses integrative health modalities as part of his health management and is requesting an Aromatherapy protocol for the rash. The client has agreed to consult a dermatologist if the rash does not respond to the Aromatherapy protocol.



Image 1. Initial consult 8/6/2022.



Image 2. Initial consult 8/6/2022.



Image 3. Initial consult 8/6/2022.

The client is regularly seen at this office for acupuncture and herbal and Aromatherapy consultations with the author. The client has a history of diverticulitis, beginning in September 2017, for which he has had surgery and several visits to the emergency room. The client is now managing his diverticulitis successfully with herbal formulas and acupuncture, with no flare-ups for one year. As a teenager, the client reported having bad facial acne and was prescribed erythromycin for three years (ages 14-17). At two weeks of age, the client underwent a pulmonary banding surgery to temporarily correct muscular “Swiss cheese” ventricular defects (VSD). Doctors removed the banding at age 4; the client underwent open heart surgery at that time to permanently correct the VSD. The client has also received acupuncture, herbal support, and Aromatherapy support for the traumatic memories he still carries from these early illnesses and surgeries. The

scars from the pulmonary banding surgery are visible in the case study photos.

Upon assessment, this client appears to be affected by *Tinea versicolor*. *Tinea versicolor*, also called *Pityriasis versicolor*, is one of the most common superficial fungal skin infections. Usually, the affected areas are either hyperpigmented or hypopigmented patches with fine scaling (Leung et al., 2022). Some individuals experienced pruritis (itching). The most affected areas in adults are the trunk of the body, neck, and upper arms. Dimorphic, lipophilic, lipid-dependent yeast-like fungus in the genus *Malassezia* causes this fungal infection. This yeast is commonly found on the skin. *Tinea versicolor* occurs when the yeast moves from budding to hyphal forms. Hot, humid weather may exacerbate this condition and increase pruritus. The border of the lesions contains the highest amount of yeast. Common successful treatments are topical antifungals, which are applied 1-2 times daily. The duration of treatment protocols in research ranges from two to eight weeks. Recurrence rates are high, and monthly prophylactic treatments are recommended to reduce recurrence (Leung et al., 2022).

Support plan

Aromatherapy

The essential oil Pineapple Myrtle® (*Leptospermum petersonii* variety 'B' ct. α -pinene) was chosen to create the client's support plan for several reasons. First, its constituents have the desired antifungal actions needed for this client's skin imbalance. Also, *Leptospermum petersonii* essential oil varieties have demonstrated practical antimicrobial actions in research (Afolabi et al., 2020; Caputo et al., 2020; Kim and Park, 2012). *Leptospermum petersonii* essential oil has demonstrated effective antifungal actions, specifically against dermatophytes, and geranial was determined to be the most effective antifungal constituent in the oil sample (Park et al., 2007). It should be noted that the chemotype used in this case study has a lower amount of geranial than the variety used in this study. Lastly, the author had been exploring the clinical potentials of this specialty variety and chemotype of *Leptospermum petersonii* and saw this as an excellent opportunity to assess this essential oil's effects with *Tinea versicolor*. These reasons were explained to the client, who readily agreed to the plan.

A 2% dilution of Pineapple Myrtle® essential oil in Grapeseed (*Vitis vinifera*) oil was prepared for the client to apply to the areas affected by *Tinea versicolor*. This dilution was chosen based on several factors focused on the three key constituents in Pineapple Myrtle® essential oil with antifungal actions: α -pinene, citral (neral + geranial), and geranyl acetate.

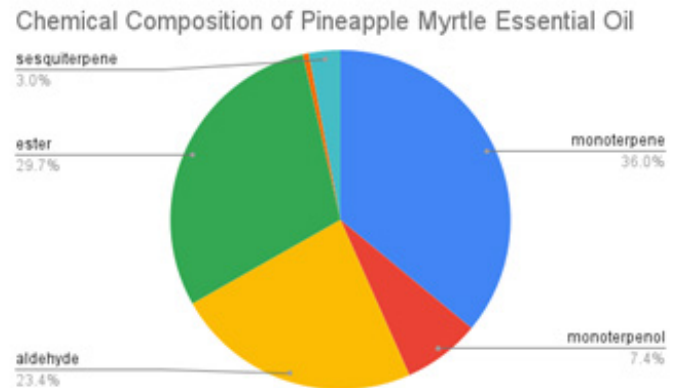


Figure 1: Chemical composition of the Pineapple Myrtle® essential oil sample used in this case (Southern Cross University, 2022).

Researchers conducted a gas chromatography-mass spectrometry (GC-MS) analysis to determine the chemical composition of the Pineapple Myrtle® essential oil (Southern Cross University, 2022). Geranyl acetate (26%) was the most prevalent constituent in this sample. Geranyl acetate has demonstrated strong antifungal action against *Candida albicans* at a 0.064% v/v dilution (Zore et al., 2011). In the Pineapple Myrtle® essential oil sample used in this case study, α -pinene composed 21.2% of the oil. α -Pinene has demonstrated antifungal action and ability to prevent biofilm formation with *Candida albicans* with a MIC of 3,125 μ g/ml (roughly 0.3% m/v dilution) (Rivas da Silva et al., 2012). Lastly, neral was 8.1%, and geranial was 10.1% of the essential oil, giving 18.2% citral in the sample.

Experts recommend citral use at a dilution ratio of 0.6% or lower in a leave-on product to reduce the risk of sensitization (Tisserand and Young, 2014). Citral has demonstrated effective *in vitro* antifungal action against *Malassezia* strains in concentrations as low as 1.25 μ L/ml (0.125% dilution ratio) (Carmo et al., 2013). A Brazilian pilot study examined a protocol using Lemongrass (*Cymbopogon citratus*) essential oil to treat *Tinea versicolor* (*Pityriasis versicolor*) (Carmo et al., 2013). The participants were given a shampoo

and a cream, both with 1.25 µL/mL concentration of Lemongrass essential oil. They were instructed to use the shampoo thrice weekly and the cream twice daily for 40 days. The protocol showed a 60% success rate compared to the 80% success rate in the 2% ketoconazole (an antifungal medicine) group.

Using a 2% dilution ratio of this Pineapple Myrtle® essential oil sample would create a 0.52% dilution of geranyl acetate, a 0.42% dilution of α-pinene, and a 0.36% dilution of citral. These dilution ratios are above the lowest threshold for antifungal activity and below the required thresholds for irritation or sensitization.

The client was instructed to apply the 2% dilution of Pineapple Myrtle® essential oil (in Grapeseed [*Vitis vinifera*] oil) to the affected areas of his back twice a day for one week. After one week, he was instructed to apply the preparation to the affected areas once a day after showering for the next two weeks. In the fourth week, the client transitioned to applying the preparation every other day for one month. In week eight, the client transitioned to applying the preparation once a week and continued this for four more weeks. The client was instructed to use the minimum amount of the preparation required to cover the affected areas and to remove it with soap and water if any irritation occurred. The client was to follow up with the Aromatherapist and acupuncturist after weeks one, three, and seven.

Acupuncture

The client received acupuncture on his initial visit to address this skin rash on 8/6/22, at his one-week follow-up on 8/13/22, and the two-week follow-up on 8/27/22. Upon observation, the client had a wiry Liver pulse and an empty Kidney pulse. The acupuncture diagnosis was qi and blood stasis in the Tai Yang leg (Bladder Meridian), and the acupuncture treatment focused on moving qi and blood. The following acupuncture points were used in all three noted acupuncture sessions: yin tang; acupuncture points Ren 15, 16, 17; HT 8, 7; SP 3, 9, LV 3; ST 41, 44, GB 40.

The 2% dilution of Pineapple Myrtle® preparation was applied in minimal amounts to every acupuncture point needed. This technique is used to synergistically support the actions of acupuncture and the additional benefits of Aromatherapy to the session.

The author has not seen any publications of this specific essential oil and chemotype being used in this manner or described in Chinese medicine. In sessions with this client and other clients in one year's time, the author observed the following qualities of Pineapple Myrtle®.

Actions: Warming and drying move qi, dispels stasis, and dries phlegm accumulation.

Meridian associations: Lung, Large Intestine, Heart, Small Intestine, Central Vessel (Ren Mai), Governing Vessel (Du Mai).

Client's response to the support plan

During the initial session on 8/6/22, the client remarked on the aroma of the essential oil, finding it enjoyable, delightful, and inviting. The client did not experience any irritation, warming sensation, itching, or other adverse reactions to the topical applications of the 2% Pineapple Myrtle® preparation during the acupuncture session.

The client returned for a follow-up appointment one week later, on 8/13/22 (Image 4). The borders of the affected areas of the skin appeared to be less scaly and less textured. The client reported enjoying the Aromatherapy applications, and the pruritus had stopped. He had not noticed any more spreading of the rash.



Image 4. 8/13/22.



Image 5. 8/27/22.

The client returned for a follow-up appointment two weeks later, on 8/27/22 (Image 5). The borders of the affected areas were noticeably smoother and were without scaling. No new patches had appeared since the client began the Aromatherapy protocol.

The client returned for a follow-up appointment one month later, on 9/24/22 (Image 6). The borders of the affected patches had become less defined. The skin in the affected areas appeared less irritated and smoother. There continued to be no new affected patches. The client reported no itching or adverse effects from the Aromatherapy application. The client was very pleased.



Image 6. 9/24/2022.



Image 7. 4/8/2023.

A photograph (Image 7) was taken at a subsequent appointment seven months later, on 4/8/23, to document the continued effectiveness of the protocol. The client has not experienced any reoccurrences. Resolution of the hypopigmentation caused by the tinea versicolor is beginning to emerge. The borders of the affected areas are much less defined.

Evaluation

This protocol was successful and enjoyable from both the author's perspective and the client's experience.

Quote from the client: "The Pineapple Myrtle® smelled great the first second I smelled it; so, I really like putting it on and wearing it. My girlfriend also liked the smell, too, so she was happy to apply it to my back. I could also see it working after the first week so that was extra motivation to keep using it."

Not having previously worked with this specific essential oil chemotype, this process was fascinating. If I made the same protocol again, I might consider using Aloe Vera (*Aloe barbadensis*) as the carrier because *Malassezia* yeasts are oil dependent. However, this protocol successfully used a fatty oil as the carrier, so it may not be necessary. I genuinely enjoyed the opportunity to work with an essential oil that con-

tained citral in smaller amounts, making it easier to prepare a safe dilution and have more variance and layers in the aroma of the essential oil. Many essential oils that contain citral have much higher concentrations of this constituent, and their aroma also dominates it. I think these outcomes warrant further investigation into using this essential oil for its antifungal actions. 🌿

References

- Afolabi W O, Hussein A, Shode F O, Le Roes-Hill M, Rautenbach F. (2020). *Leptospermum petersonii* as a Potential Natural Food Preservative. *Molecules*. 25 (23), p5487.
- Caputo L, Smeriglio A, Trombetta D, Cornara L, Trevena G, Valussi M, Fratianni F, De Feo V, Nazzaro F. (2020). Chemical Composition and Biological Activities of the Essential Oils of *Leptospermum petersonii* and *Eucalyptus gunnii*. *Front Microbiol*. 11: 409. doi: 10.3389/fmicb.2020.00409.
- Carmo E S, Pereira F de O, Cavalcante N M, Gayoso C W, Lima E de O. (2013). Treatment of *Pityriasis versicolor* with Topical Application of Essential Oil of *Cymbopogon citratus* (DC) Stapf - Therapeutic Pilot Study. *Anais Brasileiros de Dermatologia*. 88 (3), p381-385.
- Kim E and Park I K. (2012). Fumigant Antifungal Activity of Myrtaceae Essential Oils and Constituents from *Leptospermum petersonii* against Three *Aspergillus* Species. *Molecules*. 17 (9), p10459-10469.
- Leung A K, Barankin B, Lam J M, Leong K F, Hon K L. (2022). *Tinea versicolor*: An Updated Review. *Drugs in Context*. 11. doi: 10.7573/dic.2022-9-2.
- Park M J, Gwak K S, Yang I, Choi W S, Jo H J, Chang J W, Jeung E B, Choi I G. (2007). Antifungal Activities of the Essential Oils in *Syzygium aromaticum* (L.) Merr. Et Perry and *Leptospermum petersonii* Bailey and Their Constituents Against Various Dermatophytes. *J of Microbiology* (Seoul, Korea). 45 (5), p460-465.
- Rivas da Silva A C, Lopes P M, Barros de Azevedo M M, Costa D C, Alviano C S, Alviano D S. (2012). Biological Activities of α -Pinene and β -Pinene Enantiomers. *Molecules*. 17 (6), p6305-6316.
- Southern Cross University. (2022). Certificate of Analysis *Leptospermum petersonii* variety B ct. pineapple myrtle/alpha-pinene [PDF]. Lismore, Australia: Southern Cross University Analytical Research Laboratory.
- Tisserand R and Young R. (2014). *Essential Oil Safety*, 2nd ed. London, UK: Churchill Livingstone/Elsevier.
- Zore G B, Thakre A D, Rathod V, Karuppaiyl S M. (2011). Evaluation of the Anti-Candida Potential of Geranium Oil Constituents Against Clinical Isolates of *Candida albicans* Differentially Sensitive to Fluconazole: Inhibition of Growth, Dimorphism and Sensitization. *Mycoses*. 54 (4), e99-e109.



Amanda Lattin has been a practicing Aromatherapist and herbalist for over 15 years, running her own consulting practice and collaborating with other healthcare professionals to incorporate Aromatherapy and herbalism into their clients' support plans. Amanda has taught chemistry, biochemistry, herbal medicine, Aromatherapy, and phytochemistry at several colleges and universities and for continuing education for healthcare professionals. She is currently a professor and Dean of Aromatherapy at the American College of Healthcare Sciences.