

Melaleuca as an Allergen - Setting the Record Straight

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Pollen from melaleuca (*Melaleuca quinquenervia*) trees triggers allergic reactions and asthma attacks for people all across South Florida, right? **Wrong**, says an emphatic Richard “Dick” Lockey, Director of the Division of Allergy and Immunology at the University of South Florida’s College of Medicine. A paper authored by Lockey appeared in the “Proceedings of Melaleuca Symposium” (Lockey et al., 1980) that disputed the popular misconception, but it received little attention. The article was subsequently re-published in the *Annals of Allergy, Asthma, & Immunology* in 2002 (Stablein et al.), and it was in this second publication where I learned of the article. After reading it, I contacted Dr. Lockey and what he told me will surprise a lot of people in South Florida: Melaleuca pollen does not induce allergic rhinitis (allergies) or asthma in people.



Melaleuca flowers.

Photo by Paul Pratt

It seems the hoopla started in the 1960’s when Julia Morton first wrote about the medical consequences of the despised one (melaleuca, that is). Morton reported subjects who experienced respiratory symptoms after exposure to the tree, and skin irritation after contact with the bark. Unfortunately, her claims were not scientifically studied or reported in medical journals, nor were they correct.

The Lockey et al. study addressed four questions: Is melaleuca an important aeroallergen source? Are people with allergies and asthma skin-sensitive to melaleuca pollen extract (MPE)? Do people with positive skin reactions to MPE also respond with bronchial and nasal reactions? Does the odor from leaves, bark, or flowers induce reactions in people with allergies or asthma?

The findings indicated that melaleuca was not an important source of windborne pollen. Pollen samples taken from under and near melaleuca trees found very low levels of melaleuca pollen, but much higher levels of pollen from other groups of plants (i.e. oaks and grasses) and mold. It is important to remember that melaleuca flowers are pollinated by bees, and as such possess

heavy, sticky pollen. Plant species that cause allergic reactions in people are those that utilize wind for pollen dispersal.

Ninety-seven of the 1,017 subjects (9.5%) tested for skin reactions to MPE responded with positive results. This finding is not entirely surprising, as clinical allergists routinely find clients that respond to MPE. The study further indicated that many of the subjects who tested positive to skin tests also reacted when an aqueous MPE solution was placed into nostrils. Positive results suggest an allergy to melaleuca pollen, but if the pollen cannot float in air, a positive reaction is moot. In addition, positive reactions to MPE are complicated by the presence of cross-reactive antigens, which in this case is pollen so similar to melaleuca’s that the body reacts to it as if it were melaleuca. Bahiagrass pollen is a proven and abundant aeroallergen in South Florida, and acts as a cross-reactive antigen with melaleuca. Thus, while allergy specialists in South Florida often believe their patients are allergic to melaleuca pollen, what they actually are allergic to may be the windborne bahiagrass pollen. Dick Lockey concedes that melaleuca can cause contact dermatitis in people, albeit rarely. Finally, researchers found that test subjects did not react to melaleuca odors.

For forty years, the melaleuca tree has been blamed for causing allergies and asthma in the citizens of South Florida, and certainly this notion has helped weed managers as the public supported our efforts to rid the state of this species. Although Julia Morton may not have been correct, we have benefitted from her writings. With trepidation (and coaxing from Karen Brown), I decided to spread the word about the Lockey et al. study because, while the tree still gives us ample justification to dislike it, we should know the truth: Melaleuca pollen is not the culprit behind your sneeze.

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Literature cited

- Lockey, R. F., J. J. Stablein, and L. R. F. Binford. Melaleuca tree and respiratory disease: allergen or irritant effect of melaleuca pollen and odor, respectively, in patients with allergic and respiratory disease. Florida Department of Agriculture and Consumer Services Division of Forestry, 1981. Published in Proceedings of Melaleuca Symposium, September 23-24, 1980. R. K. Geiger, comp. pp. 101-115. 1980.
- Stablein, J. J., G. A. Bucholtz, and R. F. Lockey. Melaleuca tree and respiratory disease. *Annals of Allergy, Asthma, & Immunology* 89:523-530. 2002.