



## Spit it out: extraction of saliva from the lychee erinose mite (*Aceria litchi* (Keifer) Acari: Eriophyidae)\*

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The Lychee Erinose Mite (LEM) (*Aceria litchii* (Keifer)) is a gall-making eriophyid that feeds exclusively on lychee trees (*Litchi chinensis* Sonnerat), inducing the development of open leaf galls called erinea. Erinea are structures formed of hypertrophic leaf trichomes where LEM seeks refuge, feeds and reproduces. As the LEM population grows, the color of erinea change from light white to dark brown, and finally to amber color when the mite attains its highest population. Presently, no information is available on the mechanism of induction of erinea by the LEM. To test the hypothesis that the saliva of eriophyoid mites would alter the host plant physiology leading to local malformations, we collected saliva of the LEM. Based on previous published assay procedures, the response of the LEM was stimulated using several oils to induce secretion of saliva (de Lillo & Monfreda 2004). Twenty-five vegetable oils and eleven immersion oils were tested during the study and data were collected on the mortality and proportion of mites producing saliva in each oil medium at 30, 60, 90, and 120 minutes after exposure. The oil type did not affect the proportion of mites secreting saliva droplets (Kruskal-Wallis:  $\chi^2 = 14.125$ ,  $df = 11$ ,  $P = 0.23$ ). Three types of vegetable oils like tea seed, rice, and sunflower were found to be more effective in inducing secretion of saliva in the LEM and the saliva production was relatively more between 30 and 60 minutes. More LEM individuals secreted salivary droplets when placed in sunflower oil in comparison to rice and tea seed oils. No salivary production was observed when the LEM was immersed in chia, walnut, and virgin coconut oils, or vaseline. The oil type significantly affected the mortality of LEM (parametric model: deviance: 5344.7,  $df = 34$ ,  $P < 0.001$ ). Immersion in hemp, vanilla, cumin, pumpkin seed, and cedar oils induced sudden death of the LEM. The immersion oils were found generally less effective in inducing saliva production. The proportion of LEM secreting saliva when immersed in Zeiss Immersion oil 518N, tea seed and rice vegetable oils was similar and ranged between 0.02 and 0.03. Future analysis and characterization of the salivary composition of the LEM would serve to provide a better understanding of the mite-host interactions and the results could be used to improve breeding programs, that aim to develop varieties resistant to LEM infestation.

**Keywords:** Eriophyoidea, mite saliva, alterations, invasive species, media

### Reference

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