Non-chemical Approach for Mite Suppression on Tea Plants: Vermicompost Tea Drenching

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One key recommendation to guide the growth and development for tea production in Hawaii is to ensure quality. Prevention and suppression of insect and disease on tea would be part of the effort to ensure the tea quality. Various mite species feed on plant sap and cause scarring and bronzing of the leaves, and significantly reduce tea quality and production. Many farmers are looking towards non-chemical approaches for managing mites on tea as spraying pesticides might leave residues on tea leaves and will compromise the original flavor of the tea.

Materials & Methods
Two field trials were conducted in a 2-year old tea plot at the Poamoho Experiment Station of University of Hawaii, Waialua. The field was naturally infested with broad mites and 2-spotted spider mites. Plants were drenched with VCT or water (Control) biweekly. Ten new leaves from each plants were examined for mite damage (Fig. 1) subsequent to each drenching.

Results
Aeration of vermicompost tea (VCT) supports higher microbial biomass than without aeration

Summary
Drenching tea plants with VCT significantly reduced percent of young leaves damaged by mites in both trials (\(P < 0.05\), Fig. 2). The effect was more significant in trial II (46.74% reduction) than in trial I (28.36% reduction).

Although it is not curative, drenching uncured VCT at least at biweekly interval continuously could serve as a preventative measure to combat against mite damage on tea.

More research should examine integrating this induce host plant response from VCT drenching with other control measures to further protect tea plants from mite damage.

For more details about this experiment, please visit: http://www.ctahr.hawaii.edu/SustainAg/news/index.html

Fig. 1. Mite damaged tea leaf

Fig. 2. Effect of vermicompost tea (VCT) on % mite damage on tea plant in A) Trial I and B) Trial II. Means are average of 7 and 10 plants in Trial I and Trial II, respectively.