

ABSTRACT

Studies on the red spider mite of tea,
STUDIES ON THE ETIOLOGY AND BIOCHEMISTRY OF
OLIGONYCHUS COFFEA NIETNER (ACARINA:TETRANY-
CHIDAE), THE RED SPIDER MITE OF TEA IN CEYLON.

Field sprays of insecticides based on the
organochlorine formulations and one carbamate
insecticide were shown to increase the populations
of the mite, while one organophosphorous formulation
had no such effect;

E.F.W. Fernando, B.Sc. (Ceylon)

There were qualitative differences in the
free amino acids between mite infested and non-infested
leaves. The presence of an ornithine cycle in the mite,
was observed.

A thesis submitted for the degree of Master of
Science of the University of Ceylon.

The breakdown of
chlorophylls to pheophorbides and pheophytins in
infested tea leaves was found to be the cause of
the 'bronze' or red-brown discoloration of such leaves.
The breakdown of such species-specific
pigments, present presumably in its integument,
due to a combination of two different carotenoid
pigments, present presumably in its integument.

A carotenoid, xanthoxanthin, and a
terpenoid compound, which remains unidentified, was found

PERMANENT REFERENCE
FOR USE IN THE
LIBRARY ONLY

254287 X

August, 1967.

Abstract (contd.)

ABSTRACT

to be present. Studies on the red spider mite of tea, *Oligonychus coffeae* Nietner showed that these mites were more abundant on mature leaves than on young 'flush' shoots of tea.

Field sprays of insecticides based on three organochlorine formulations and one carbamate insecticide were shown to increase the populations of the mite, while an organophosphorous formulation had no such effect.

There were qualitative differences in the free amino acids between mite infested and non-infested leaves. The presence of an ornithine cycle in the mite was observed.

The oxidation of certain polyphenolic compounds to theaflavin and its gallate, and the breakdown of chlorophylls to pheophorbides and pheophytins in mite infested tea leaves was found to be the main cause of the 'bronze' or red-brown discolouration of such leaves.

The red colour of the mite species studied was found to be due to a combination of ten different carotenoid pigments, present presumably in its integument.

A carotenoid pigment, rhodoxanthin, and a terpenoid compound, which remains unidentified, was found

Abstract (contd.)

to be present in leaves of tea bushes susceptible to Red Spider mite attack. It is suggested that these two compounds may be acting as a stimulant or attractant to this mite.

made in the text.

It has not been previously accepted in substance and is not being concurrently submitted in candidature for any other degree.

Candidate: *S. P. Fernando*
S. P. Fernando

Supervisor: *W. Danjansarajana*
W. Danjansarajana
B.Sc. (Cey), Ph.D. (Lond), D.C.