mechanism is present which produces hydrofuge properties in a surface submerged in water, and have variously suggested that wax or its secretion, or the tanning of proteins, would prove essential to that unknown mechanism. The physico-chemical system now proposed would seem to satisfy these requirements and also to accommodate the associated evidence which has previously been described.

A full account of the experiments on which this suggestion is based, and of their probable implications for the physiological mechanisms of insects, will appear elsewhere.

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Effect of Relative Humidity on Hatching and on Toxicity of Ovicides to Eggs of the Red Spider Mite, *Tetranychus telarius* (L.) (Acarina : Tetranychidae)

SOME information is already available on the relationship between relative humidity and hatching of eggs of *Tetranychus telarius* (L.)[1]. However, the information is based on data compiled from broad ranges of relative humidity and therefore does not enable an exact picture of the relationship to be seen.

In connexion with biological and toxicological studies in this laboratory on eggs of *T. telarius* it has been found convenient to induce mites to lay eggs on glass slides. This has made it possible to make an accurate study of the effects of relative humidity. By holding eggs in a particular relative humidity at 23° C. for the whole incubation period, the degree of resistance to desiccation or drowning over the whole range of relative humidities has been obtained. Results are given in Fig. 1.

With the red spider mite *Panonychus ulmi* (Koch), Beament[2] describes a change in the structure of the egg membrane which makes the egg 'waterproof' 6 hr. after it is laid. With *T. telarius* there appears to be no such complicating factor, the eggs having a certain resistance to desiccation and drowning from the moment of being laid.

Available information about the micro-climate on a leaf surface is unfortunately inconclusive. It can be assumed, however, that relative humidity can be high and in fact can reach saturation point. If such conditions of saturation or near saturation occurred for any prolonged period, it is clear that a high natural mortality of eggs could be expected.

Experiments with ovicides were carried out in relative humidities restricted to those which had little or no adverse effect on egg hatch. Freshly laid eggs of *T. telarius* were treated by dipping in ovicides (wettable powder formulations) and then incubated

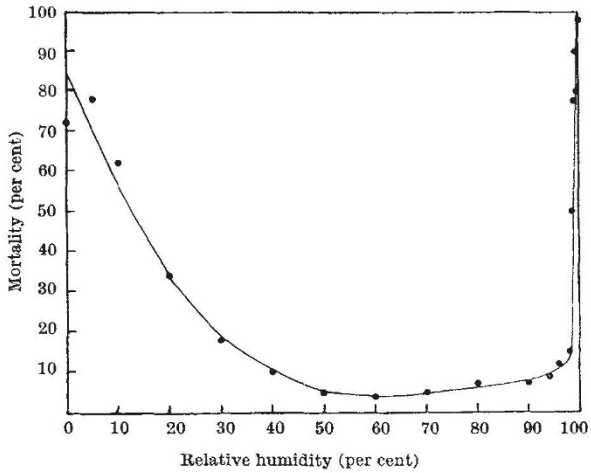

Fig. 1. Mortality of eggs of *T. telarius* in different relative humidities at 23° C.

in different humidities at 23° C. The concentration of ovicide which produced 50 per cent mortality of eggs (*LC*50 = lethal concentration 50) was determined at each humidity. Regression lines of mortality against concentration, obtained at each humidity, were parallel. Several ovicides were tested and all showed a similar trend : a decrease in *LC*50 with an increase in relative humidity. Results obtained for one of them, 'Kelthane' (1,1-*bis*(*p*-chlorophenyl)-2,2,2-trichloroethanol), are given in Fig. 2.

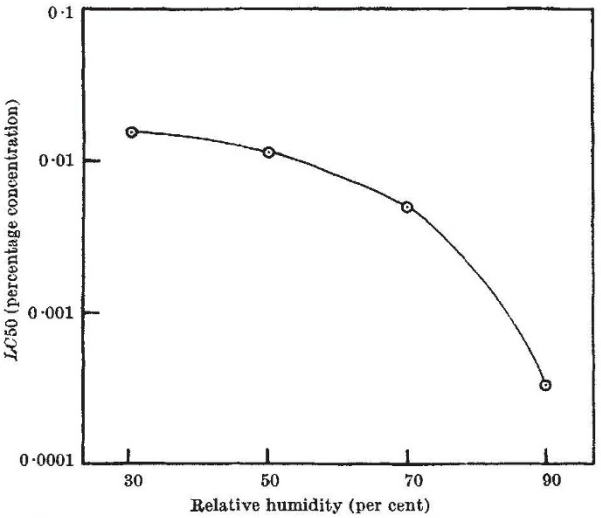

Fig. 2. Toxicity of 'Kelthane' to eggs of *T. telarius* incubated in different relative humidities. (An *LC*50 of 0·05 represents an application of ½ lb. active material per 100 gallons of water)

These results show that relative humidity must be considered as one of the significant factors affecting the performance of an ovicide.

A full report of this work is in preparation.

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