

oxidized by a series of reactions linked to glycolysis and Krebs cycle<sup>6</sup> and the rate of activity of Krebs cycle and/or glycolysis is important for controlling the dormancy<sup>7-10</sup>, there is another possibility of ethanol acting as a respiratory substrate and exhibiting faster kinetics of germination. Though the role of ethanol as a respiratory substrate is uncertain, it is known to occur naturally and metabolize in plant system<sup>6</sup>.

The possible involvement of ethanol as an anaesthetic to promote germination and/or as a respiratory substrate with dormancy breaking effect through respiration is further being probed into in our laboratory.

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1. Taylorson, R. B. and Handricks, S. B., *Planta*, 1979, 20, 273.
2. Adkins, S. W., Naylor, J. M. and Simpson, G. M., *Physiol. Plant.*, 1984, 62, 18.
3. Bradbeer, J. W. and Pinfield, N. J., *New Phytol.*, 1967, 66, 515.
4. Taylorson, R. B. and Handricks, S. B., *Isr. J. Bot.*, 1981, 20, 273.
5. Westwood, M. N., *Temperate zone pomology*, W. H. Freeman, San Francisco, 1978, p. 77.
6. Fidler, J. C., *J. Exp. Bot.*, 1968, 58, 41.
7. Adkins, S. W., Simpson, G. M. and Naylor, J. M., *Physiol. Plant.*, 1984a, 60, 227.
8. Adkins, S. W., Simpson, G. M. and Naylor, J. M., *Physiol. Plant.*, 1984b, 60, 234.
9. Upadhyay, M. K., Naylor, J. M. and Simpson, G. M., *Physiol. Plant.*, 1982, 54, 419.
10. Upadhyay, M. K., Naylor, J. M. and Simpson, G. M., *Physiol. Plant.*, 1983, 58, 119.

## NEW WILT OF COTTON — A PHYSIOLOGICAL DISORDER CAUSED BY SYNTHETIC PYRETHROIDS

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THE new wilt of cotton is a serious problem characterized by drooping of leaves, chlorosis and premature defoliation. Some hybrids such as MECH 1, JKHY 1 and DCH 32 are highly susceptible to this malady. This disorder, first reported in 1978 when the incidence was very low, later became

a serious problem. From about the same time, the widespread use of synthetic pyrethroids for the control of bollworms was started in cotton. This coincidence naturally raised a question whether there is any relationship between the new wilt incidence and the use of synthetic pyrethroids. An experiment was therefore conducted to study the effect of synthetic pyrethroids on the incidence of new wilt. The preliminary findings are reported here.

Two hybrids, one highly prone to new wilt (MECH 1) and the other tolerant (H4), were sown at this Institute in a 4.5 × 3 m plot during the first week of July 1987, in a randomized block design with 6 replications. The spacings between the rows were 90 cm and that between the plants were 60 cm. The treatments were:

T<sub>1</sub>: Control (water spray).

T<sub>2</sub>: Three sprays of cypermethrin at 55 g a.i. per hectare, first at early square formation stage and the subsequent at 20 day intervals.

T<sub>3</sub>: Five sprays of cypermethrin at 55 g a.i. per hectare, first at early square formation stage and the subsequent at 10 day intervals.

Normal culture practices were followed. Observations on a number of wilted plants were recorded at the initiation of boll-bursting stage and the per cent incidence of new wilt was calculated for each treatment. Angular transformation was applied and the data were analysed statistically.

Application of cypermethrin, a synthetic pyrethroid induced the development of the new wilt disorder in susceptible hybrids. The incidence increased with an increase in the number of sprays. In control plants, the new wilt was almost negligible. Cypermethrin, however, failed to induce wilting in the tolerant hybrid H4.

The present results suggest that the synthetic pyrethroid has a role to play in the incidence of new wilt disorder in susceptible hybrids of cotton. This agrees with earlier findings<sup>2,3</sup>.

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1. Shrinivasan, K. V., *New wilt in cotton*, Central Institute for Cotton Research, Nagpur, 1984, p. 9.
2. Yamanaka, K., *J. Jpn. For. Soc.*, 1984, 66, 297.
3. Tabata, K., *Bull. For. For. Prod. Res. Inst. Jpn.*, 1985, No. 332, 101.