

**OVIPOSITION, GROWTH, AND DEVELOPMENT
OF SWEET POTATO WHITEFLY,
BEMESIA TABACI (GENN)
(HOMOPTERA: ALEYRODIDAE)
ON TRANSGENIC TOBACCO**

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Abstract

A model system for investigating effects of alkaloids on insects in transgenic plants has been developed at Texas A&M University. Genes currently being studied are tryptophan decarboxylase (TDC) and tyrosine decarboxylase (TyDC) in tobaccos containing the β -glucuronidase marker driven by the cauliflower mosaic virus 35S promoter that accumulates tryptamine and tyramine, respectively. Work is underway to construct TDC and TyDC transgenic cottons. Egg cohorts of *Bemisia tabaci* on TDC, TyDC, and control tobaccos had similar developmental times to the adult stage in both generations, but significantly greater mortality on the transgenics than on the control. This mortality primarily occurred when adults failed to emerge from pupae, or emerged but could not survive, and to a lesser extent when 3rd instar nymphs did not molt to the pupal stage. There were about 50% fewer adults produced in the two generations reared on the transgenics (TDC and TyDC) compared to the control. Mortalities observed from generation one to generation two in the same plant treatment were not significantly different. The total average oviposition per female was highest on TyDC (67.8) followed by the control (57.1) and TDC (46.9), but not statistically different among treatments (0.05 level). The average eggs per day were highest for TyDC (9.7) followed by the control (6.7) and TDC (4.9). Female longevity was shortest for TyDC (6.7) followed by the control (8.5) and TDC (9.5). The transgenics do not appear to adversely affect oviposition or longevity but do significantly reduce survival compared to the control in this study.