

RESISTANCE-ASSOCIATION OF AMPLIFIED EST α 3 IN *CULEX QUINQUEFASCIATUS* FROM COLOMBIA

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Resistance to organophosphate insecticides in *Culex quinquefasciatus* mosquitoes is associated with increase esterase activity due to overproduction of one or more esterases. The most common resistance-associated phenotype is co-elevation of the esterases Est α 2 & Est β 2. Est β 1 is the second commonest elevated esterases found in *Cx quinquefasciatus* worldwide. Recent biochemical studies have shown that some of the *Cx quinquefasciatus* strains with the amplified Est β 1 also have an amplified Est α 3. This poster reports immunological and molecular biological data showing that the Colombian *Culex* possess Est α 3, as well as the Est β 1. Est α 3 has an identical mobility to Est β 1 on native polyacrylamide gel electrophoresis, and hence it is not readily apparent that two enzymes are amplified. The original Colombian strain was not subjected to any insecticidal pressure in its natural habitat. Esterase specific activity values showed that the population is heterozygous with respect to resistance. The laboratory reared temephos selected colony had esterase activity levels producing 0.61 nmoles esterase product/min/mg protein after five generations of selection, compared to 0.19 units in the original population. The underlying mechanism for insecticide resistance in this strain is esterase amplification. The DNA restriction digest patterns show that Est β 1 in the Colombian strain differs from the other Est β 1 genes previously reported. We also report on the genomic organization of the Est α 3 amplicon and its relationship to Est β 1.