ABSTRACT

Drosophila kikkawai is a complex species consisting of D. kikkawai, D. leontia and D. bocki which are morphologically indistinguishable but are reproductively isolated. Cytotaxonomic use of salivary gland chromosomes have made studies of chromosomal characteristic of D. kikkawai and the phylogenetic relationships between D. kikkawai and D. leontia possible by comparison of salivary gland chromosome banding patterns. D. kikkawai from natural populations in Thailand exhibits two simple inversions in chromosome 3L. Inversion 3LA is quite common while inversion 3LB is restricted to certain population only. All other chromosomes are apparently monomorphic in gene arrangements.

Hybridization tests between the strains of D. kikkawai and D. leontia using one pair-mating was failed. However, mass matings involving as many as 20-30 pairs were successful producing offspring of both sexes. Fertility test of F_1 progeny showed that the F_1 females were fertile while the F_1 males were sterile. Cytogenetical examination of F_1 hybrids manifests marked difference in gene sequences which seem to reflect the mode of speciation in this complex species. Interestingly enough D. kikkawai and D. leontia share inversion 3LB and differ in 2 gene sequences in chromosome 3L. Also these two species differ in one simple

inversion in chromosome 2L and one simple inversion in chromosome 2R. They are so extensively different in gene orders in the X chromosome that the salivary chromosome of F_1 female is completely unsynapsis along the chromosome length.

BIOGRAPHY

Name: SANGVORN KITTHAWEE

Date of Birth: June 7, 1954

Place of Birth: Nakhornpathom, Thailand

Institutions Attended:

NARIVATANA SCHOOL, SAMUT SONGKHARM

2 March, 1971.....Certificate of Mathayomsuksa III

SAINT JOSEPH'S CONVENT, BANGKOK

7 March, 1973.....Certificate of Mathayomsuksa V

RAMKHAMHAENG UNIVERSITY, BANGKOK

Department of Biology, Faculty of Science

21 March, 1977....Bachelor of Science (B.Sc.)