KARYOTYPIC VARIATION IN THE DROSOPHILA KIKKAWAI COMPLEX

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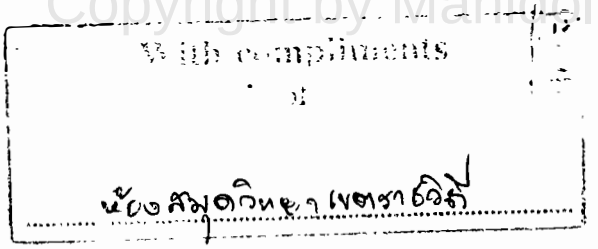

ABSTRACT

A total of 176 isofemale lines of two sibling species of the D. kikkawai complex from different geographic origins were examined cytologically. D. kikkawai is quite common and is regarded as subcosmopolitan species while D. leontia seems to be restriced to the Oriental region. D. kikkawai exhibits variation in sizes and shapes of the 4th and the Y chromosomes. At least 11 types of 4th chromosomes and 6 types of Y chromosomes have been detected in this study. Thus the 4th chromosome occurs as dot, acrocentric, submetacentric and metacentric of various sizes (designated as Types I-XI).

Types II,VI,VIII,IX and X of 4th chromosome as disignated in this study were previously observed and described by many authors. Types I,III,IV,V,VII and XI have been discovered in this study. Types I,III,VII, and XI have been found in the Mae Hong Sorn population. Type IV has been found both at Mae Hong Sorn and Nakorn Nayok while type V occurs at several localities-eg. Los Banos, Kota Kinabalu, Kuching, Kuala Lumpur, Singapore, Mae Hong Sorn, Chantaburi and Nakorn Nayok.

Six types of Y chromosomes (Y_1-Y_6) of various sizes and shapes have been observed as acrocentric,submetacentric and metacentric. Type Y_2 was previously described by many authors. Types Y_1,Y_3,Y_4,Y_5 and Y_6 have been recorded in this study. The $Y_1$and Y_6 have been detected at Kuching while the Y_3 is common in Southeast Asia including Thailand. Types Y_4 and Y_5 so far have been observed at Mae Hong Sorn.

From the Mae Hong Sorn population, Three out of forty-two isofemale lines showed aneuploidy. Special emphasis is made to the

strain no.A76-7 which exhibit extensive chromosomal variation with respect to the number of the 4th chromosome (2n = 8-13). Furthermore, cases of X chromosome nondisjunction have also been observed in this particular strain.

With Hoechst 33258 staining, the mitotic chromosome of D. kikkawai from natural population shows H-bright regions mainly on the 4th and Y chromosomes. Autosomes and X chromosomes show H-bright regions only at centromeric region.