

- O-05.** Hexaploid of *Dendranthema indicum* (L.) DES MOULINS. (Asteraceae) newly found in Awaji Island, Hyogo Prefecture: Norikatsu NAGAHAMA and Yoshihiko YONEZAWA (Dept. of Biology, Naruto Univ. of Education)

Dendranthema indicum, having yellow ray-floret, is widely distributed in western Japan, the Kinki, Chugoku, Shikoku and Kyushu Districts. Two intraspecific polyploids, 4x (2n=36) and 6x (2n=54), have been recognized in this species. The latter is found primarily in the western region of the Chugoku district, the northern region of Kyushu District and Wakayama Prefecture. Through a cytogenetical survey on wild *Dendranthema* in Awaji Island, the hexaploid population of *D. indicum* was newly found in Ichinomiya-cho, the western region of the Island. Sixteen subtelocentric or telocentric chromosomes were identified in the chromosome complement of 6x plant, while eight in 4x plant in Awaji Island (Taniguchi 1987). It is suggested, therefore, that 6x plants found in Awaji Island are not derived directly from 4x plants, but from a hybrid crossed with other wild *Dendranthema*. However, no difference in morphological characteristics was also recognized between 4x and 6x plants. To confirm the origin of 6x plants, the cytogenetical and morphological surveys on 6x plants grown in the Chugoku and Kyushu District as well as the survey of molecular level are necessary.

- O-07.** An *Arabidopsis* mutant, defective in a cyclin-like gene, exhibits aberrant pairing of homologous chromosomes in meiosis I: Yoshitaka AZUMI¹, Hong MA², Hideho SUZUKI¹ (¹ Dept of Biol. Sci., Kanagawa Univ., ² Dept. of Biol., Penn State Univ.)

An *Arabidopsis* meiotic mutant, *solo dancers* (*sds*), was isolated from transposon-tagged line collection by its sterility. It was previously shown by DAPI staining of spread chromosomes that paired *sds* homologous chromosomes were uncoupled from each other before metaphase I and segregated to both poles at anaphase I with abnormal distribution ratios of chromosomes, such as 4:6 or 3:7, instead of normal 5:5. FISH experiment with probes prepared from BAC clones proved that *sds* homologous chromosomes were able to pair, though the pairing looked very transient, and that respective homologous chromosomes were distributed to each pole at random at anaphase I. The mutated gene of *sds* mutant was identified using transposon sequence, and its wild type gene *SDS* was found to have substantial homology to cyclin genes and shown to express only in pollen mother cell at meiosis by RT-PCR and *in situ* hybridization. These results indicate that a novel meiosis-specific cyclin regulates pairing of homologous chromosomes at meiosis I in *Arabidopsis*.