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Diversity of Animal species, Systematics and Phylogeny-3

Determination of The Chromosome Number of The *Trombidium holosericeum* for The First Time

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Abstract

Cytogenetic data are available for some mites in the suborders, Mesostigmata, Astigmata, Cryptostigmata and Prostigmata, but no information is available for mites of the family Trombidiidae. To date, no study has been conducted on the chromosome numbers of the Trombidioidea superfamily. In this study, *Trombidium holosericeum* of belonging to trombidiid mites, which has been studied morphologically and taxonomically, but no cytologically, was examined, this chromosome numbers, monoploid idiograms and chromosomal measurements were made. The cytogenetic protocol modified by Imai et. al. (1988) and Gokhman Quicke (1995) was used as a method for this study. All dissections were performed in a small drop of hypotonic sodium citrate solution (1 g $Na_3C_6H_5C_7.2H_2O$ in 100 ml distilled water). Tissues were placed in a colchicine solution (% 0.01 mg in 100 ml Earle's Minimum Essential Medium) and incubated at room temperature for 10-20 min. Tissues were transferred into a small drop of %45 acetic acid on a siliconized cover slip for 20-30 s. A drop of lacto-acetoorcein [1-part concentrated orcein stain with 3 parts (1:1) lacto-acetic acid] was then added and mixed with the fixative. A clean slide was placed onto the siliconized cover slip and the preparation was air-dried. The mitotic chromosomes of *T. holosericeum* was found to be 2n=12. *T. holosericeum* has a total haploid chromosome length of 8.31 µm, an average chromosome length of 1.38 µm. Chromosome number studies on mites found a wide variety of chromosome numbers. In general, mites and ticks have been reported to have 2n=2 to 36 chromosomes. Comparison could not be made because there is no other study on trombidioid.

Keywords: Actinotrichida, cytogenetic, karyotype, Trombidiidae

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