

The karyotype studies in central Europe's species of the superfamilies Amaurobioidea and Dictynoidea (Araneida)

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The diploid chromosome numbers and the male sex determination systems were found as follows: Agelenidae: *Agelena gracilens*, *A. labyrinthica*, *Coelotes atropos*, *C. inermis*, *C. terrestris*, *Tetrax denticulata* 42, X_1X_2O , *Tegenaria agrestis*, *T. atrica*, *T. silvestris* 42, X_1X_2O , *Tegenaria campestris*, *T. domestica* and *Histoipona torpida* 43, $X_1X_2X_3O$, *Tegenaria ferruginea* 41, $X_1X_2X_3O$; Amaurobioidea: *Amaurobius fenestralis*, *A. ferox*, *A. jugorum*, *Callobius claustrarius* 43, $X_1X_2X_3O$; Argyronetidae: *Argyroneta aquatica* 21, XO ; Cybaeidae: *Cybaeus angustiarum* 42, X_1X_2O ; Dictynidae: *Cicurina cicur* 33, $X_1X_2X_3O$, *Dictyna uncinata* 23, XO , *Brigittea civica* 21, XO , *Nigma flavences*, *N. viridissima* 19, XO ; Hahniidae: *Cryphoea silvicola* 43, $X_1X_2X_3O$, *Antistea elegans* 35, $X_1X_2X_3O$; Liocranidae: *Liocranum rupicola* 22, X_1X_2O ; Titanocidae: *Titanoeca obscura* 30, X_1X_2O ; Zoridae: *Zora spinimana* 24, X_1X_2O .

The karyotypes of the species under study are dominated by acrocentric chromosomes. Metacentric chromosomes are dominated in karyotype of *Argyroneta aquatica* and those of family Dictynidae except *Cicurina cicur*. The principal chromosomal rearrangements involved are Robertsonian translocations, various types of inversions and duplications of nucleolar organizer regions (NORs). Nondisjunctions are supposed to be involved in the origin of the $X_1X_2X_3O$ system which is derived from X_1X_2O one. Observed NOR locations were telomeric and intercalary ones. NORs are often duplicated. In *Tetrax denticulata* the large part of one chromosomal pair (between duplicated NOR and telomere) is heterochromatic at least at interphase nuclei, spermatogonial and oogonial mitoses and meiosis (from leptotene to pachytene). The inactive state was probably caused after paracentric inversion of the duplicated NOR from telomeric region to the intercalary position. The inverted region was inactivated and it is also achiasmatic during meiosis.

Karyological data allow to hypothesize that both superfamilies form one natural group (further "AD" group) with presumable ancestral karyotype of 42 acrocentric chromosomes and male sex determination X_1X_2O . According to proposed scheme "lower AD" (Cybaeidae, Agelenidae including Coelotinae) is a sister group to "higher AD" to which the other groups studied are included. *Argyroneta aquatica* is not close related to *Cybaeus*. The Families Liocranidae and Zoridae probably are not related to "AD" group. $X_1X_2X_3O$ system independently arose in (1) some groups of Agelenidae and (2) the ancient "higher AD" with ancestral karyotype 43, $X_1X_2X_3O$. Subsequent karyotype evolution of "higher AD group" is characterized by the tendency towards decreasing the $2n$ by Robertsonian translocations and pericentric inversions. The $X_1X_2X_3O$ system was converted gradually to secondary X_1X_2O and then to XO at some lineages. The presence of one minute X chromosome in *Callobius claustrarius* ($X_1X_2X_3O$) supports the idea about the change $X_1X_2X_3O$ system to secondary X_1X_2O . The gradual reduction of the chromosomal number by Robertsonian translocations in Dictynidae supports the hypothesis that the divided cribellum is apomorphic character for this family.