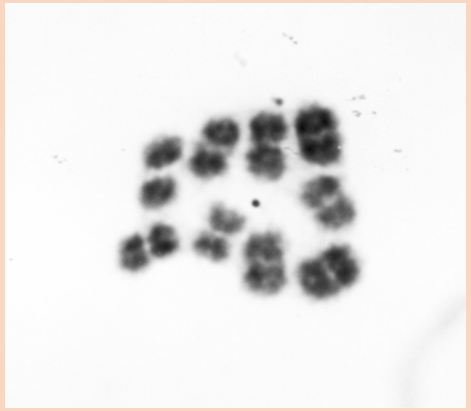
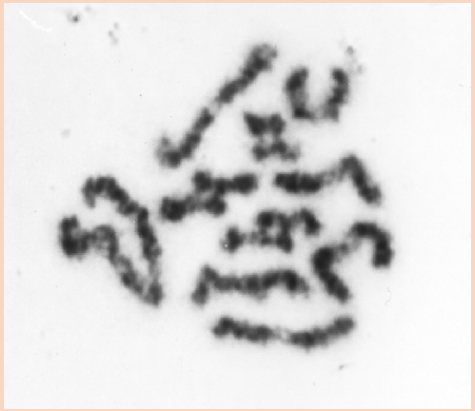
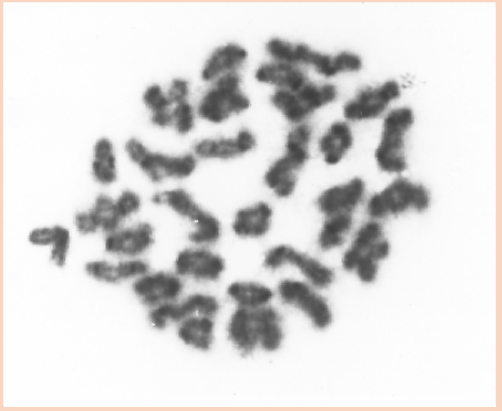
ekologie a evol. biologie bezobratlých

Evoluce pohlavních chromosomů pavoukovců

Jiří Král & František Šťáhlavský



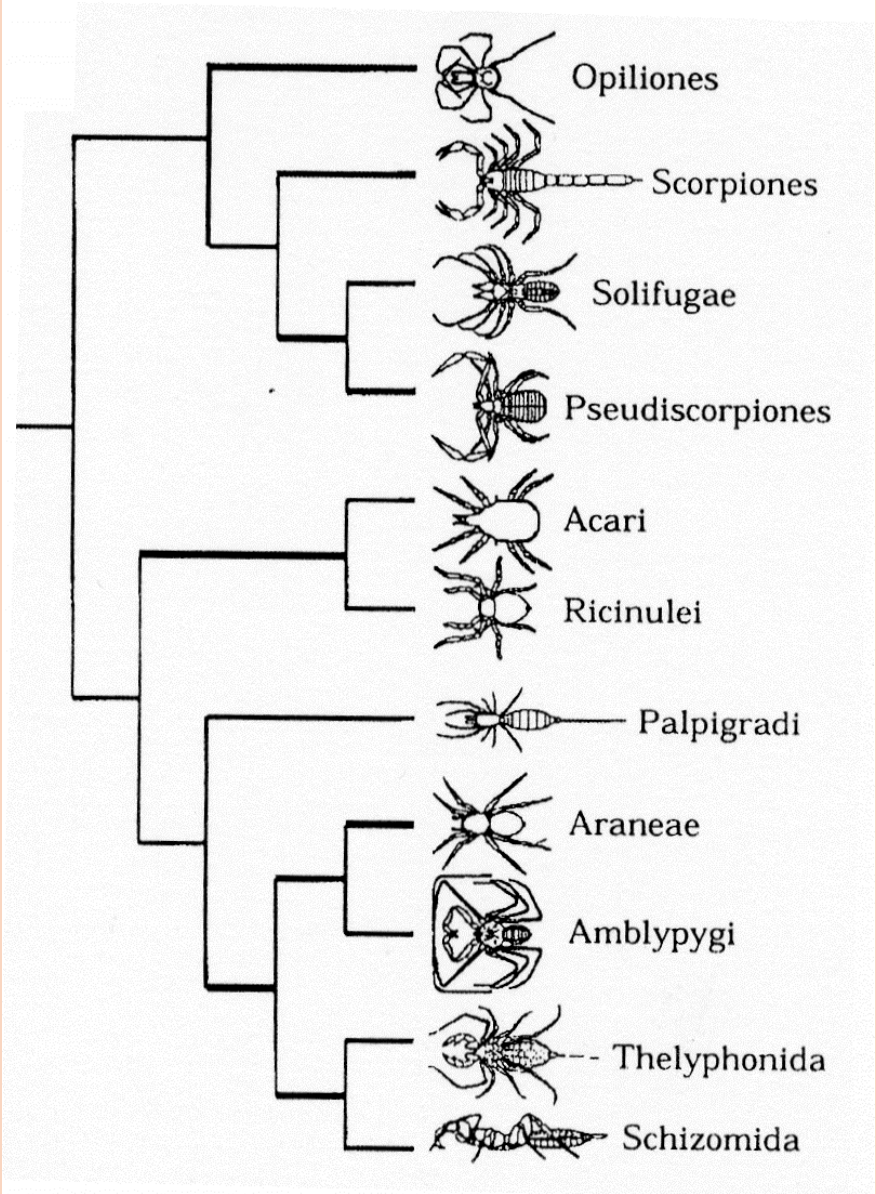




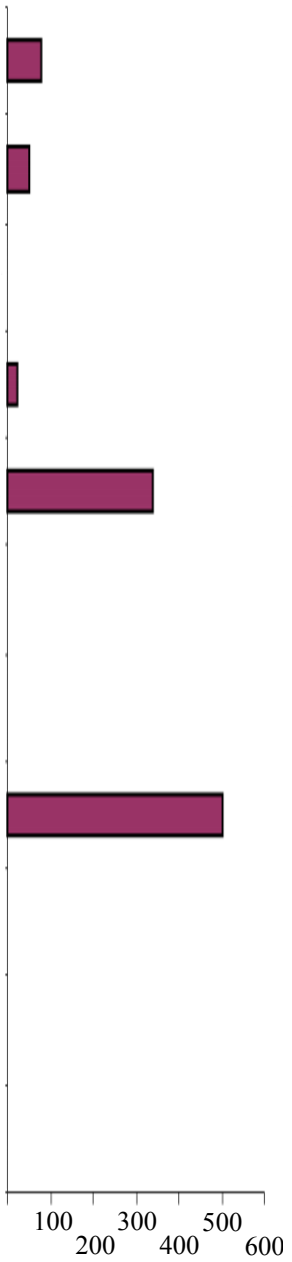
Publikace k tématu od roku 2006:

• Šťáhlavský F., Král J., Harvey M.S. & Haddad C.R. 2006: A karyotype study on the pseudoscorpion families Geogarypidae, Garypinidae and Olpiidae (Arachnida: Pseudoscorpiones). *European Journal of Entomology* **103**(2)**:** 277-289.
• Král J., Musilová J., Šťáhlavský F., Řezáč M., Akan Z., Edwards R., Coyle F.A. & Ribera C.A. 2006: Evolution of the karyotype and sex chromosome systems in basal clades of araneomorph spiders (Araneae: Araneomorphae). *Chromosome Research* **14:** 859-880.
• Řezáč M., Král J., Musilová J. & Pekár S. 2006: Unusual karyotype diversity in the European spiders of the genus *Atypus* (Araneae: Atypidae). *Hereditas* **143:** 123-129.
• Král J., Kováč L., Šťáhlavský F., Lonský P. & Ľuptáčik P. 2007: The first karyotype study in palpigrades, a primitive order of arachnids (Arachnida: Palpigradi). *Genetica* (online first).
•Řezáč M, Král J. & Pekár S. 2007: The spider genus Dysdera (Araneae, Dysderidae) in Central Europe: revision and natural history. Journal of Arachnology **35:** 432-462.
• Král J. 2007: Evolution of multiple sex chromosomes in the spider genus *Malthonica* (Araneae: Agelenidae) indicates unique structure of the spider sex chromosome systems. *Chromosome Research* **15:** 863-879.
• Zaragoza J.A. & Šťáhlavský F. 2008: A new *Roncus* species (Pseudoscorpiones: Neobisiidae) from Montseny Natural Park (Catalonia, Spain), with remarks on karyology. *Zootaxa* **1693:** 27–40.

• Šťáhlavský F., Zeh J.A., Zeh D.W. & Král J. (submitted): Karyotype study on two south american pseudocorpions, *Cordylochernes scorpioides* and *Semeiochernes armiger* (Pseudoscorpiones: Chernetidae). *Journal of Arachnology*



after Wheeler & Hayashi 1998



2n = 10-78, XY (1x ZW)

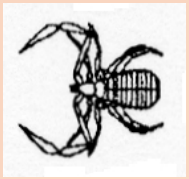
2n = 6-175, nediferencované

2n = 7-73, X0 a XY

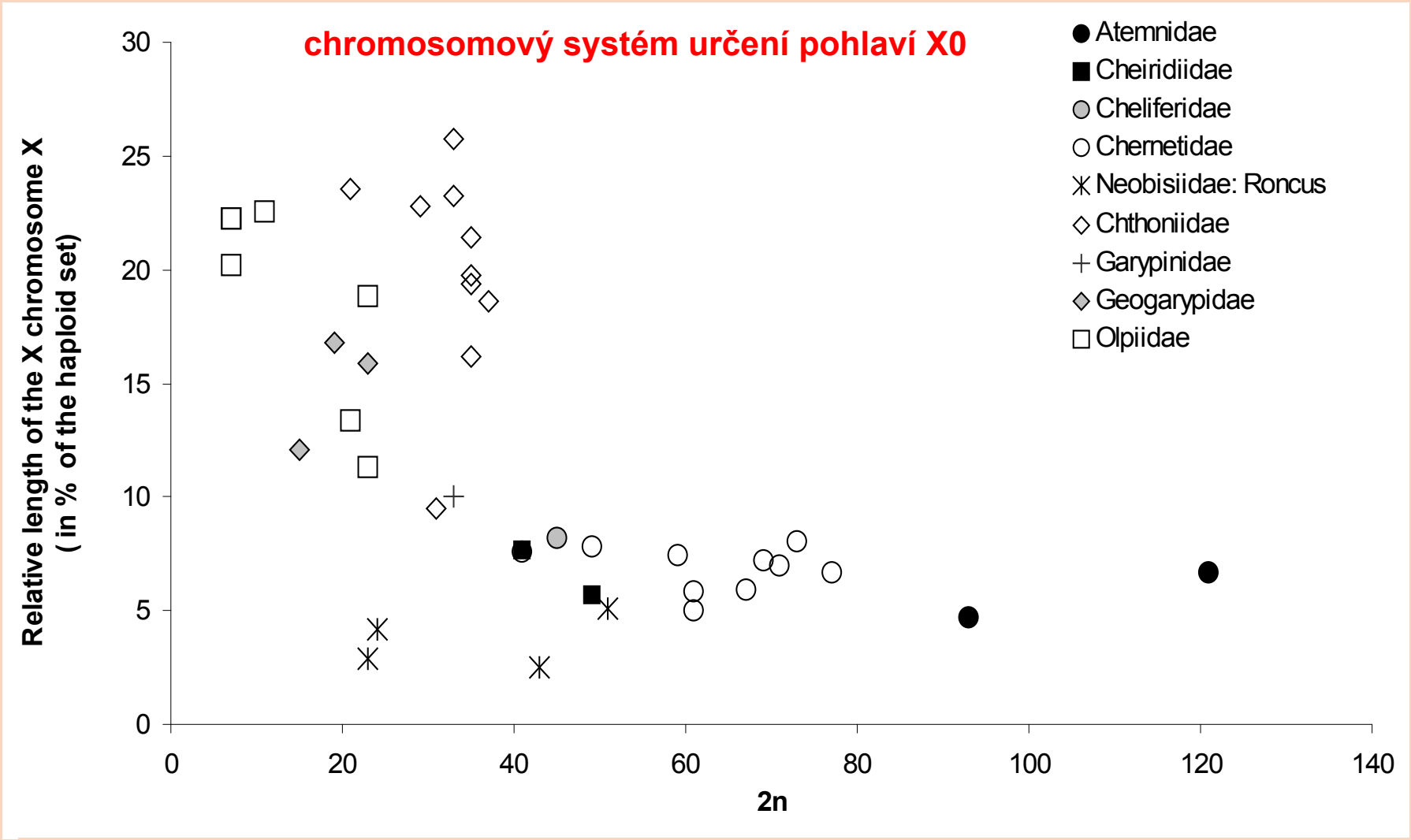
2n = 4-34,XY,X0,haplodiploidie

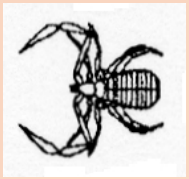
2n = 7-94, X_1X_20, X0, XY…

100 200 300 400 500 600 počet studovaných druhů



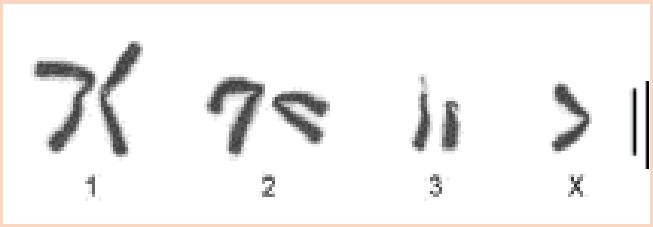
Štírci (Pseudoscorpiones)





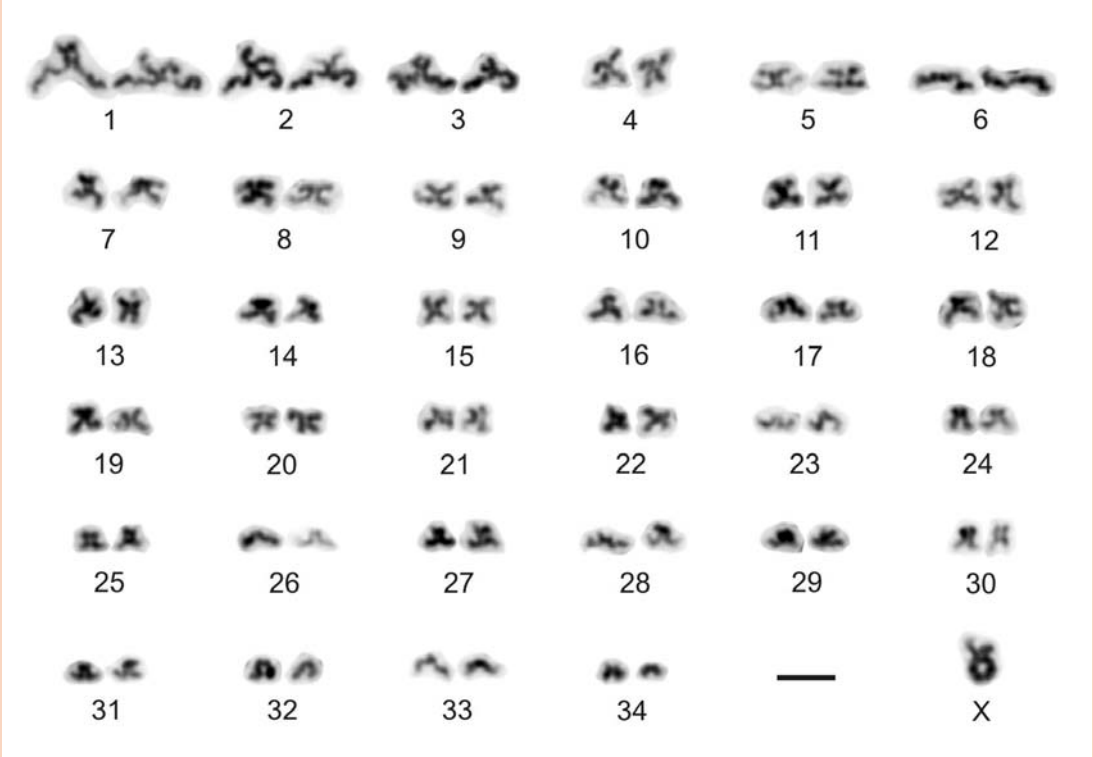
Šťáhlavský F., Král J., Harvey M.S. & Haddad C.R. 2006: A karyotype study on the pseudo-scorpion families Geogarypidae, Garypinidae and Olpiidae (Arachnida: Pseudoscorpiones).

Olpium turcicum
2n = 7, X0
(Turecko)

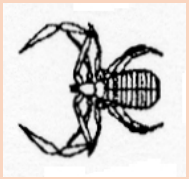


Indolpium sp.
2n = 7, X0
(Austrálie)

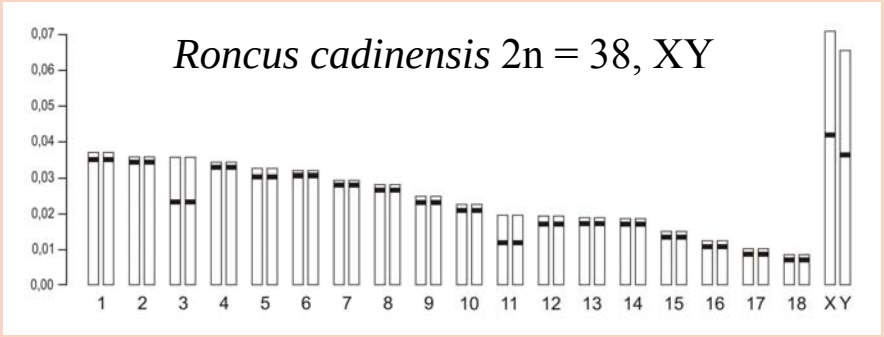
Semeiochernes armiger
2n = 69, X0
(Panama)

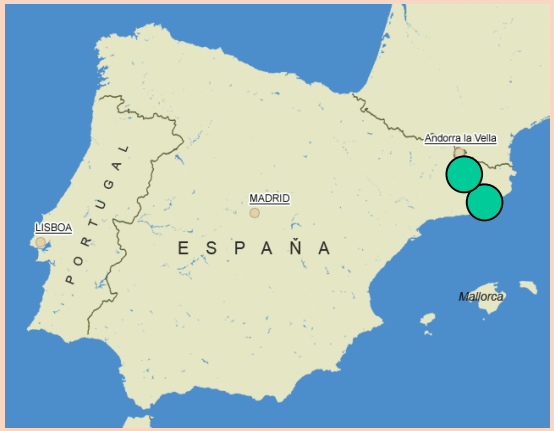


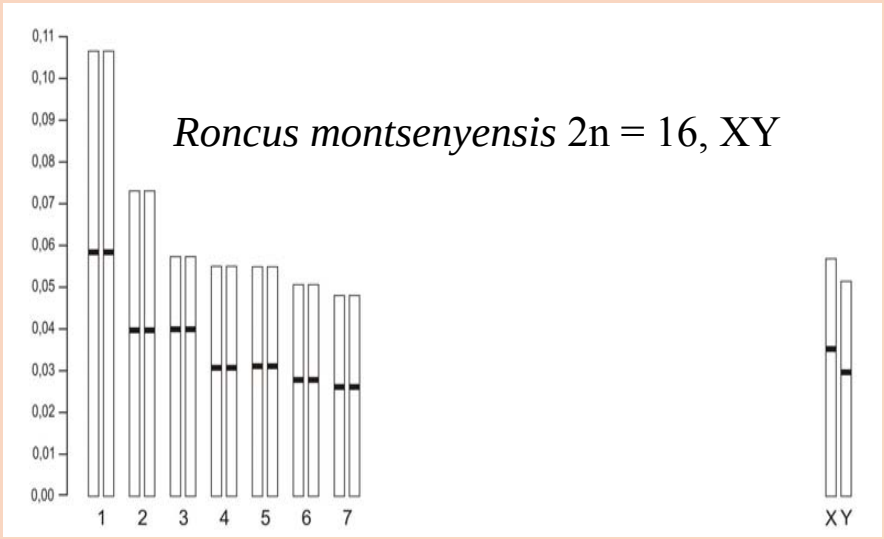
Šťáhlavský F., Zeh J.A., Zeh D.W. & Král J. (submitted): Karyotype study on two south american pseudocorpions, *Cordylochernes scorpioides* and *Semeiochernes armiger* (Pseudoscorpiones: Chernetidae). *Journal of Arachnology*

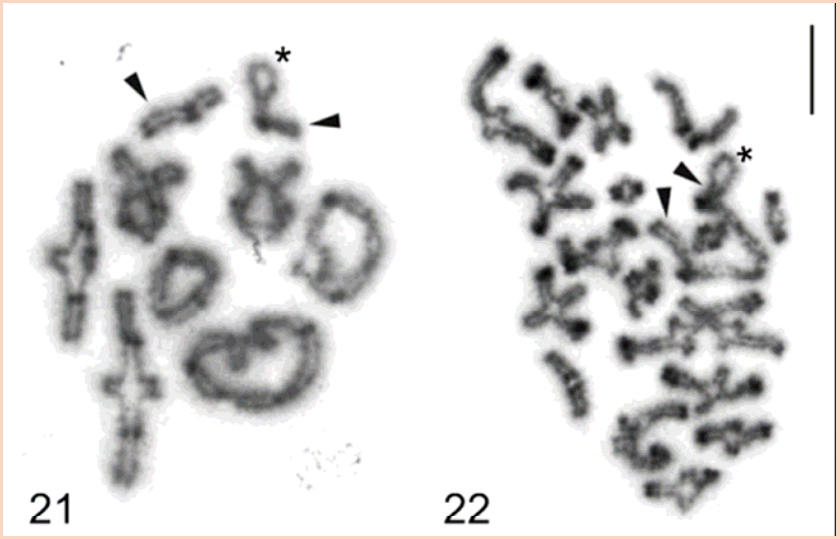


Neobiisiidae: *Roncus*

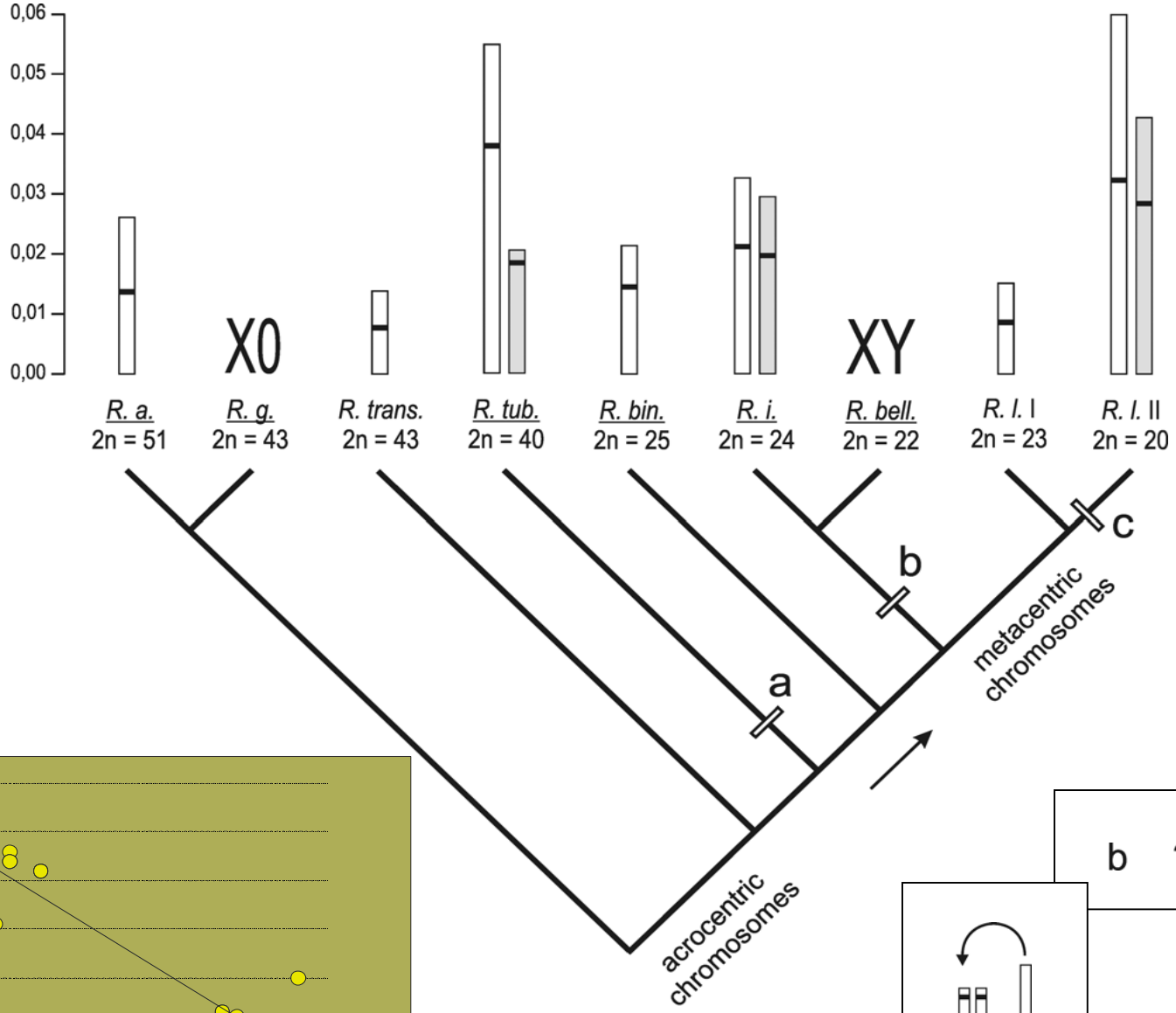


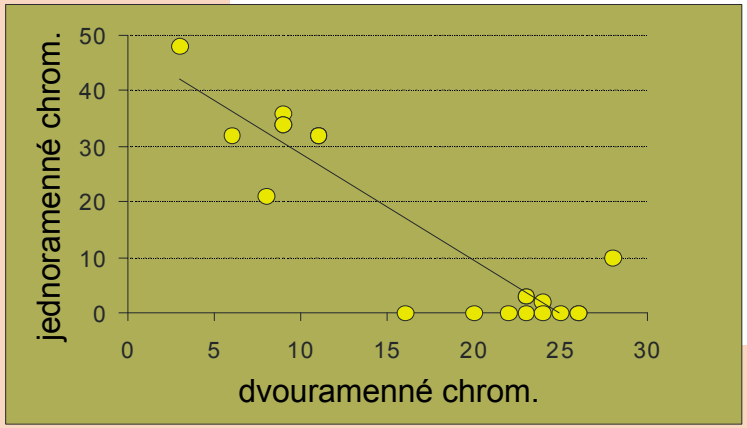


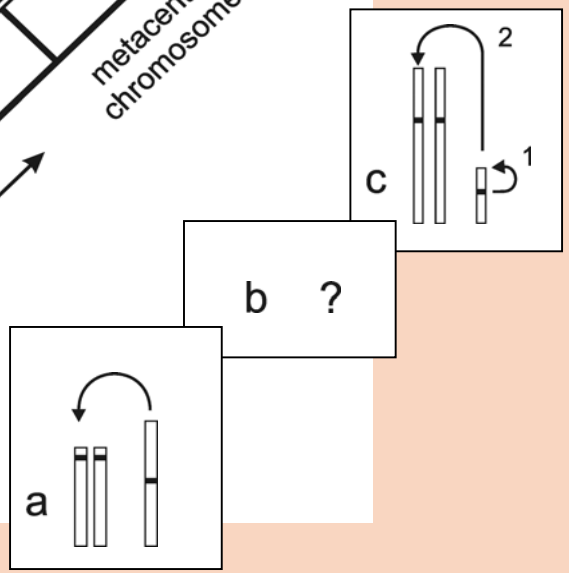


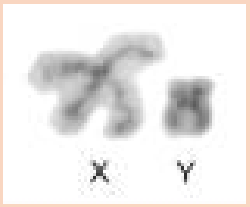


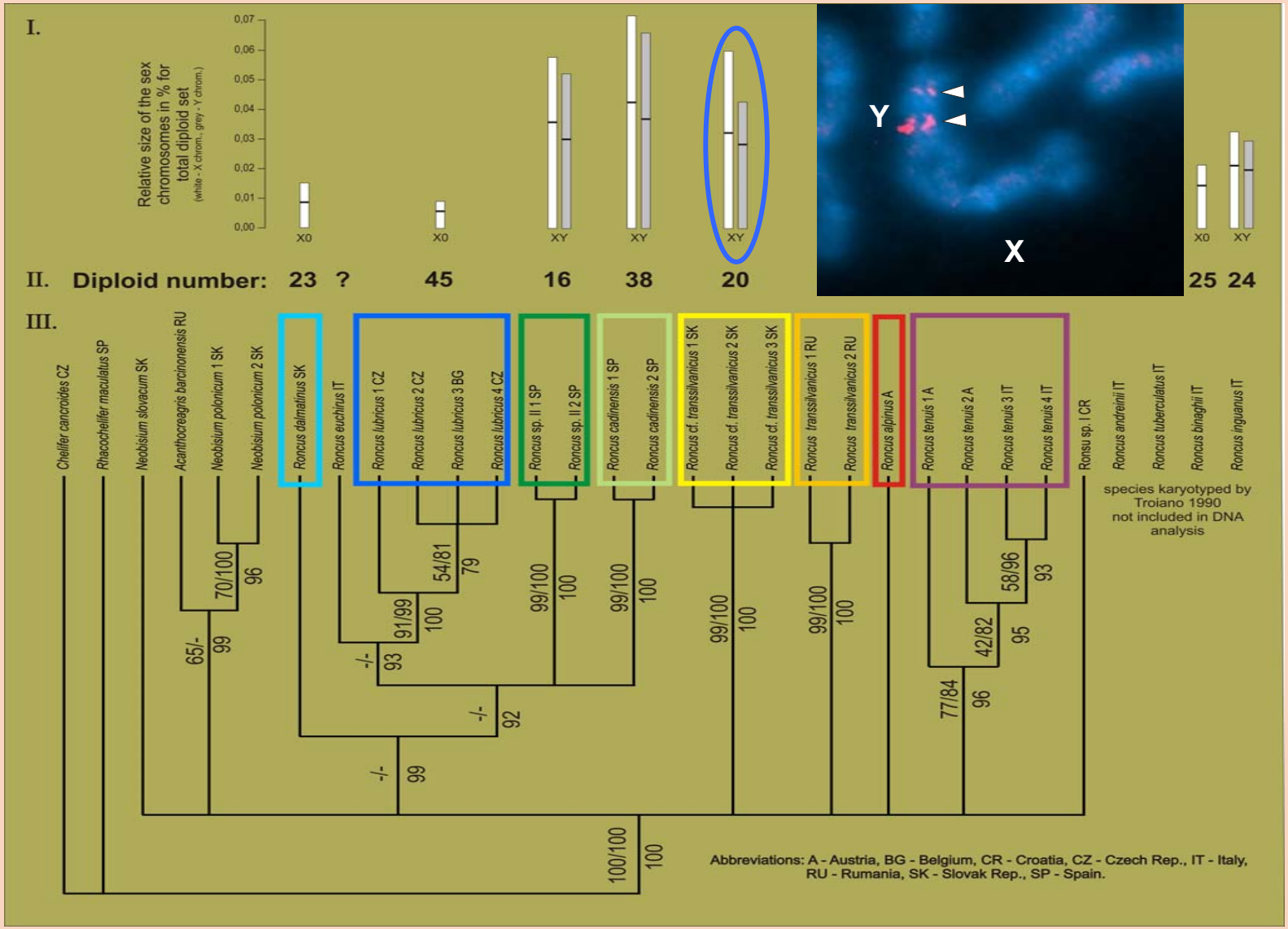
Zaragoza J.A. Šťáhlavský F. 2008: A new *Roncus* species (Pseudoscorpiones: Neobisiidae) from Montseny Natural Park (Catalonia, Spain), with remarks on karyology. *Zootaxa* **1693:** 27–40.


0,06
0,05
0,04
0,03
0,02
0,01
0,00
X0
XY
R. a.
2n = 51
R. g.
2n = 43
R. trans.
2n = 43
R. tub.
2n = 40
R. bin.
2n = 25
R. i.
2n = 24
R. bell.
2n = 22
R. l. I
2n = 23
R. l. II
2n = 20
a
b
c
metacentric chromosomes
acrocentric chromosomes

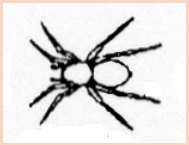

jednoramenné chrom.
dvouramenné chrom.
0
10
20
30
40
50
0
5
10
15
20
25
30


2
1
c
b ?
a





Šťáhlavský F., Janko K., Vítková M. & Král J. 2007: Evolution of the genus *Roncus* (Pseudoscorpiones: Neobisiidae): involvement of sex chromosome rearrangements into speciation. - 17th International Congress of Arachnology in Sao Pedro, Brazil, August 2007



Pavouci (Aranae)

Nejlépe prozkoumaný řád, 2n = 7 – 94 (nejčastější je ale 2n = 20-30)
původní systém chromosomového určení pohlaví je X_1X_20
(odvozené systémy X0, $X_1X_2X_30$ až neo-$X_1X_2X_3X_4X_5Y_1Y_2Y_3Y_4$)

Mesothele

Mygalomorphae

Araneomorphae

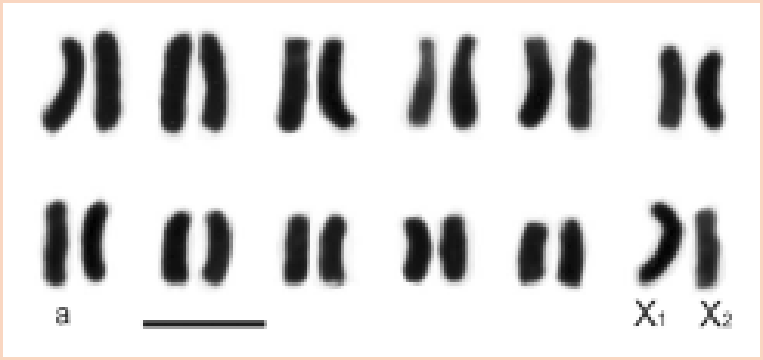
Hypochilidae

Gradungulidae

Austrochilidae

Haplogynae

Entelegynae

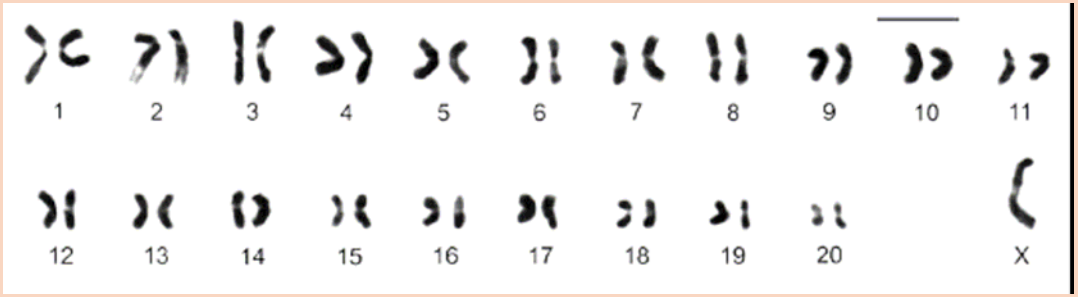


Stegodyphus mimosarum 2n = 24, X1X20

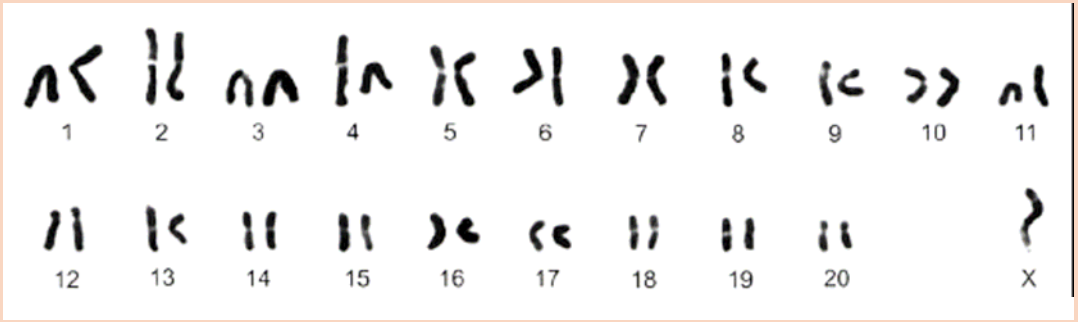
Řezáč M., Král J., Musilová J. & Pekár S. 2006: Unusual karyotype diversity in the European spiders of the genus *Atypus* (Araneae: Atypidae). *Hereditas* **143:** 123-129.

Mygalomorphae

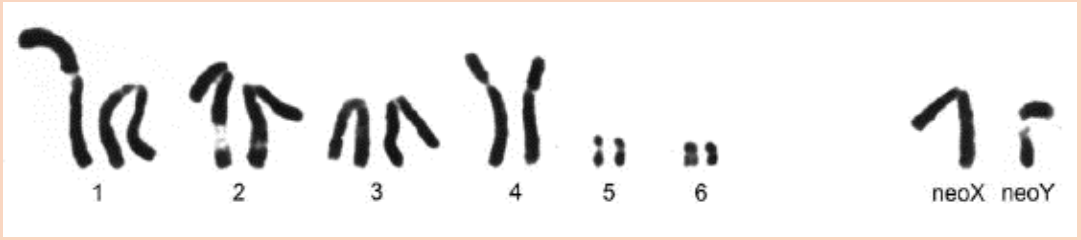
Atypus piceus



Atypus muralis



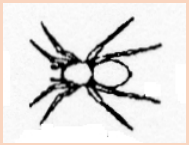
Atypus affinis



Atypus karschi

2n = 44, X_1X_20

(Suzuki 1954)



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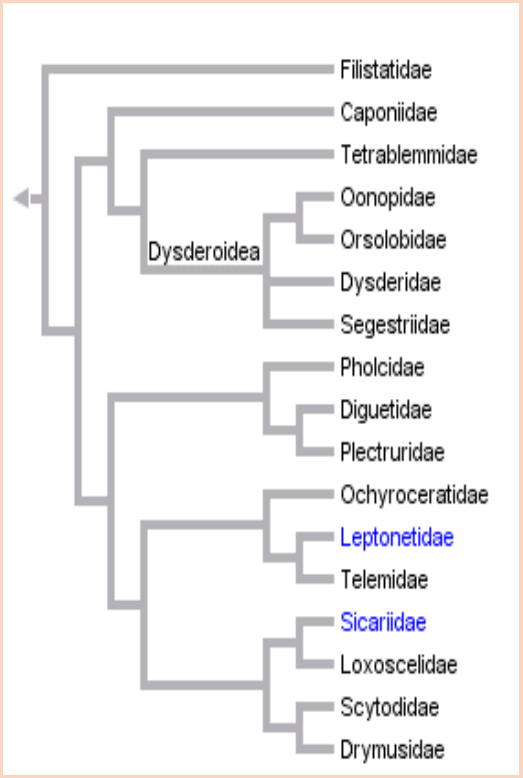
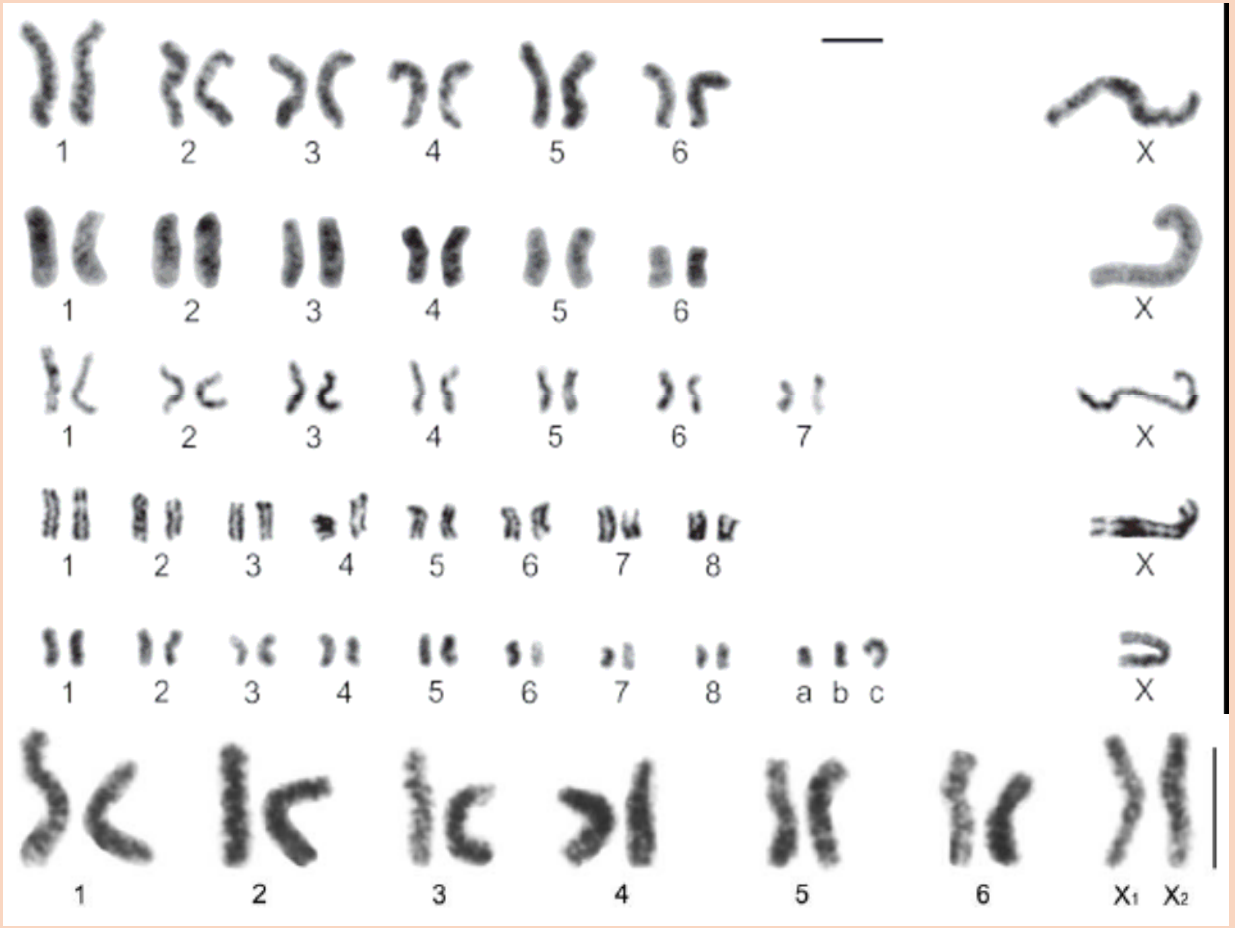
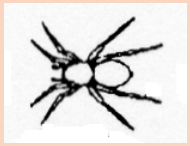




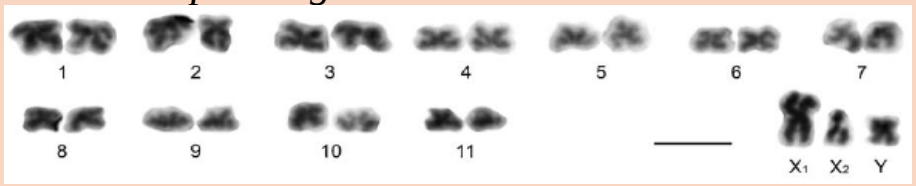
Dysdera crocata, D. ninnii, D. dubrovninnii, D. hungarica, D. adriatica, Segestria bavarica



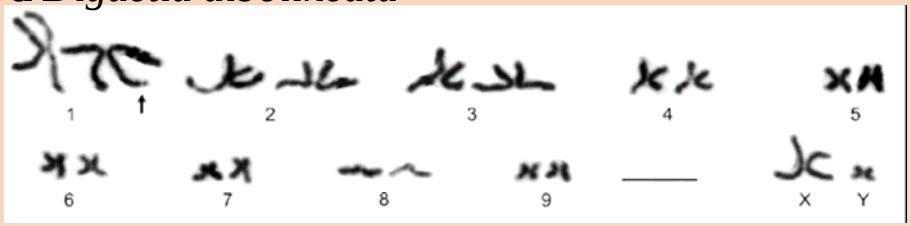
Král J., Musilová J., Šťáhlavský F., Řezáč M., Akan Z., Edwards R., Coyle F.A. & Ribera C.A. 2006: Evolution of the karyotype and sex chromosome systems in basal clades of araneomorph spiders (Araneae: Araneomorphae). *Chromosome Research* **14:** 859-880.

a *Spermophora senoculata*

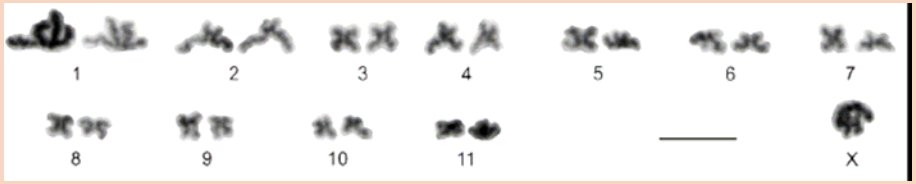
b *Pholcus phalangioides*

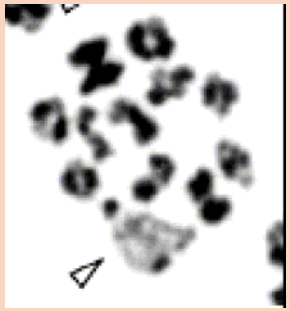


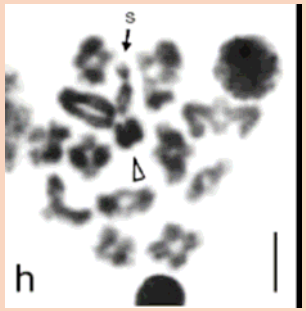
d *Diguetia albolineata*

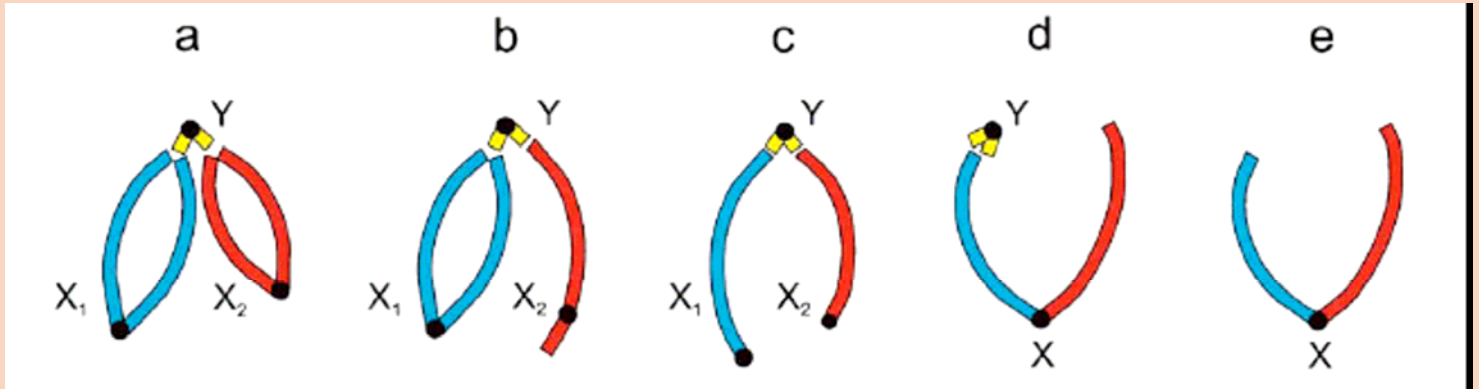


e *Holocnemus caudatus*









Štírenky (Palpigradi)

Král J., Kováč L., Šťáhlavský F., Lonský P. & Ľuptáčik P. 2007: The first karyotype study in palpigrades, a primitive order of arachnids (Arachnida: Palpigradi). *Genetica*.

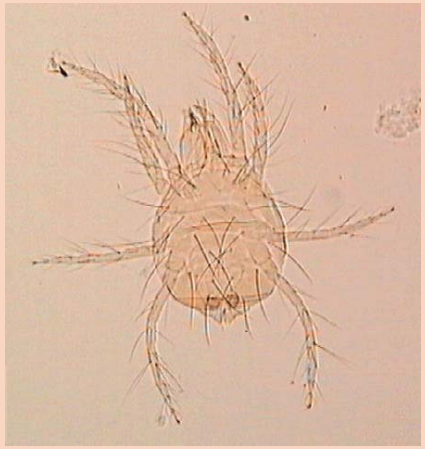
Eukoenenia spelaea

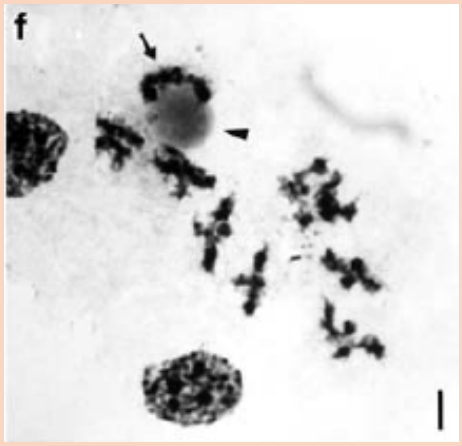
2n = 18

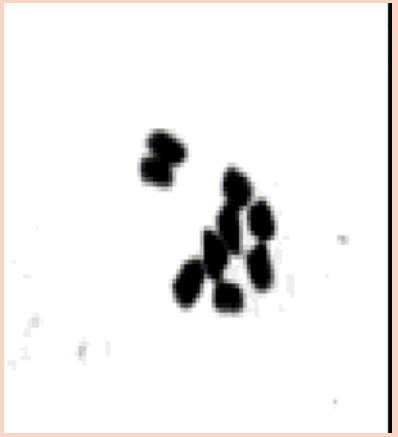
Eukoenenia mirabilis

2n = 14

bez morfologicky diferencovaných pohlavních chromosomů







Tetranychidae

F. Šťáhlavský

J. Král

J. Musilová

M. Řezáč

S. Pekár

Děkuji za pozornost

M. Forman

S. Sember

L. Dulíková

T. Vařil

P. Dolejš

M. Pastuchová