

RESUMO - CITOGENÉTICA ANIMAL

CHROMOSOMAL EVOLUTION AND EVOLUTIONARY RELATIONSHIPS OF THE GENUS *LEBIASINA* (TELEOSTEI, CHARACIFORMES)

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The Lebiasinidae family is composed by seven genus of minute fishes living in small rivers of Central and South America, with a great diversity in shape and body color. However, their evolutionary relationships are still unclear. Here we present, for the first time, cytogenetic data of two *Lebiasina* species (*L. bimaculata* and *L. melanoguttata*) using multipronged cytogenetic approaches including C- and CMA3 banding, repetitive DNAs mapping, CGH and Zoo-FISH experiments. We aimed i) to investigate evolutionary events inside *Lebiasina* genus and their relation with other Lebiasinidae genera and ii) to check whether cytogenetic data supports evolutionary relationships between Lebiasinidae and Ctenoluciidae, as proposed for recent molecular phylogeny studies. Both *Lebiasina* species have the same diploid number ($2n=36$), with karyotypes composed exclusively by bi-armed chromosomes and similar microsatellite

distribution pattern. However, both species present contrasting patterns of C-positive heterochromatin and CMA3+ bands. The remarkable interstitial series of C-positive heterochromatin occurring in *L. melanoguttata* is absent in *L. bimaculata*. Accordingly, *L. bimaculata* shows the rDNA sites as the only GC-rich (CMA3+) regions in the chromosomes. On other hand, *L. melanoguttata* evidences a clear CMA3+ intercalated banding pattern. In addition, the chromosomal mapping of rDNAs showed a different pattern between both species, with multiple 5S and 18S rDNA sites in *L. melanoguttata* in contrast with single ones in *L. bimaculata*. CGH experiments also revealed a high level of genomic differentiation between both *Lebiasina* species. Notably, a polymorphic state of a conspicuous C-positive, CMA3+ and (CGG)_n band was found only to occur in *L. bimaculata* females. However, whether such genomic divergence, also highlighted by the CGH experiments, represents a nascent sex chromosome system or is related to a copy number variation process is not yet clear. Besides possessing the same diploid number, the WCP and CGH experiments indicate that *Lebiasina* and *Boulengerella maculata* share similar chromosomal sequences, thus supporting relatedness among them and evolutionary relationships between the *Lebiasinidae* and *Ctenoluciidae* families.