



## DIVERSITY, CO-DISTRIBUTION AND CO-PHYLOGENY OF HELMINTH PARASITES OF MEXICAN VIVIPAROUS CYPRINODONTIFORMS

Gerardo Pérez-Ponce de León

Instituto de Biología, Universidad Nacional Autónoma de México. DF, México.

Email: [ppdleon@ib.unam.mx](mailto:ppdleon@ib.unam.mx)

### ABSTRACT

Freshwater fish helminth parasites have been studied in Mexico since 1936. Sampling effort, particularly in the last two decades, allowed us to build a comprehensive database. Even though we argued in 2010 that the inventory was nearing completion for all helminth groups except monogeneans, the use of an integrative taxonomic approach in the last years shows that still a huge effort is required to complete the inventory, particularly when DNA data are provided to establish more robust species delimitation criteria, including the recognition of cryptic species. In this paper I analyze the database we have gathered thus far regarding these 2 groups of hosts in terms of species richness and host and geographical association. Mexican viviparous cyprinodontiforms have been thorough fully sampled, and in the case of goodeins (45 species) we are certain that the inventory of their helminth fauna has been completed (51 helminth species in 36 extant species of goodeines). But, apparently, that of poeciliids (84 species) is not complete yet (55 helminth species in 30 host species). Each of these groups of viviparous freshwater fishes harbor a typical component of helminth species defined as the "core helminth fauna" (in a biogeographical sense) which is a general pattern and is not correlated with the viviparous nature of their hosts. Some of these species exhibit a clear co-phylogenetic pattern with their host, and a co-distribution pattern with the areas where they occur. As an example I present the digenean *Margotrema* spp. in goodeines across its distributional range in central/ northwestern Mexico.