Not all that looks like a Tubulinean is a Tubulinean: expectations and reality for the parasitic amoeba *Janickina pigmentifera* (Grassi, 1881)

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A parasitic amoeba living in the testes that occupy the caudal part of chaetognaths was firstly reported by Grassi in 1881. Later, two species *Janickina pigmentifera* and *Janickina chaetognathi* were re-isolated four times from different places in the Mediterranean Sea: from the strait of Messine, Naples, near Algeria, and near Villefranche-sur-mer. *Janickina* has a monopodial, or limax locomotive form similar to *Hartmannella*, *Saccamoeba* or *Glaesseria* (Amoebozoa, Tubulinea). Also, it was reported the presence of an "ocellus" in the cell similar to intracellular symbiont *Perkinsela*-like organism (PLO) of *Paramoeba eilhardi* (Paramoebidae). Only in 1980, Hollande presented the ultrastructural data of *J. pigmentifera* showing the kinetoplastid nature of the "ocellus" later also confirmed in *Paramoeba*. He also showed that the cell coat of *Janickina* was a stratified glycocalyx. It was not similar to the microscales of *Paramoeba* or glycocalyx of *Neoparamoeba*, but usual for *Thecamoeba* instead. These morphological characters were too contradictory, so the genus *Janickina* was placed *incertae sedis*. The studies of these amoebae were always illustrated with drawings and not light microscopic micrographs. Molecular phylogenetic data are not yet available for *Janickina*. Therefore, the genus remains *incertae sedis* today. We re-isolated *Janickina pigmentifera* from planktonic chaetognaths of the Bay of Villefranche. The first microphotographs of locomotive forms for *J. pigmentifera* were obtained. These amoebae showed a monopodial locomotive form typical for Tubulinea. For the first time, we obtained the 18S rRNA gene sequences of *Janickina pigmentifera* and its PLO. Contrary to our expectations based on morphology, the preliminary molecular phylogenetic analysis based on 18S rRNA gene showed that in spite of its morphological characters, *Janickina pigmentifera* grouped within the clade of *Neoparamoeba* as a sister to *Neoparamoeba branchiphila*. A similar result was obtained for molecular phylogenetic analysis of 18S rRNA gene of PLO from *J. pigmentifera*. It grouped as a separate long branch – sister to the PLO of *Neoparamoeba branchiphila*. This result undermines the morphological concept of the Tubulinea.