On-going studies on vegetative and encysted fossil euglenids.

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Abstract

It is not uncommon for morphologically similar palynomorph types extracted from different stratigraphic horizons to receive different taxonomic names. There are, however, few examples of this phenomenon that are quite as prominent as the concentrically striated forms that go by the names *Chomotriletes* (Paleozoic), *Pseudoschizaea* (Mesozoic), and *Concentricystes* (Cenozoic – Recent). Due to their morphological similarity with a report of encysted *Euglena*, it has recently been proposed that these palynomorphs may have been produced by an ancient protist belonging to the Euglenophyceae. Based on the study of core samples from an Hirnantian (Late Ordovician) section in the subsurface of Saudi Arabia, we propose that these fossils represent the encysted form of the more stratigraphically restricted, but equally distinctive, taxon *Moyeria* Thusu. *Moyeria* is the vegetative (free-swimming) form of these ancient protists, and morphologically is clearly related to extant Euglenophyceae; this has been demonstrated by analysis using transmission electron microscopy. Establishing this link using solely extant euglenoids has been challenging since the taxonomy of the group is based exclusively on the vegetative forms, and knowledge of encystment in the group is practically non-existent. The discovery of both encysted and vegetative morphologies in a single horizon from the Hirnantian of Saudi Arabia provides a rare and crucial link in the ongoing effort to cement this relationship, and further expand upon the existing utility of these fossils as paleoenvironmental indicators.

Keywords: NPPs, Palaeozoic palynology, Chomotriletes, Pseudoschizaea, Concentricystes

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