Summary

Silicoflagellates are single-celled, planktonic marine algae. Their characteristic siliceous skeletons are a common component of Cenozoic marine sediments, in particular in both northern and southern high latitudes. Studies on living and fossil silicoflagellate assemblages are rarely undertaken by Polish scientists; therefore, the group deserves being reminded of.

The history of silicoflagellates is at least 115 million years long. Early stages of their evolution in the Cretaceous are known exclusively from sites located in polar regions: from the Weddell Sea off Antarctic coast and from the Canadian Devon Island. The Cenozoic fossil record of the group, in particular from the Southern Ocean, is remarkably rich and enables the application of silicoflagellates as paleoenvironmental proxies. Furthermore, owing to their simple, geometric patterns of hollow tubular elements, silicoflagellate skeletons are an excellent subject for mathematical modeling. Thus, they are unique research objects for precise determination of skeleton formation patterns.

Interpreting the fossil record of silicoflagellates is challenging, but they provide a useful proxy for geological studies. For instance, considering variations in silicoflagellate assemblages, in addition to more common micropaleontological proxies like diatoms or radiolarians, enables a more comprehensive understanding of temperature-related changes in surface ocean productivity. Fossil silicoflagellates occur not only in high latitude sediments, but also in numerous outcrop sites in Poland (e.g., the Upper Silesia Basin). Regardless of the provenance of the material for study, silicoflagellates are an exciting subject, and their status as a neglected group of microorganisms is totally undeserved.