Globally, lakes and reservoirs ecosystems are integral parts of ecological processes. Nevertheless, global warming is rapidly changing their function and sustainability, especially in the populated area of the northern hemisphere. Here we examined testate amoebae community and 10 environmental variables from 51 lakes and reservoirs across China and developed testate amoebae transfer functions for temperature based on both abundance- and biomass-datasets. A total of 169 testate amoebae taxa were identified. Our partial CCA analyses revealed that water temperature explained 5.15% (P = 0.006) and 5.57% (P = 0.008) of the total variance in testate amoebae abundance and biomass, respectively. The WA-PLS was the best model in abundance-based temperature transfer function (RMSEP = 2.87 °C, R_2= 0.60), whereas the MAT proved to be the best model for biomass-based temperature transfer function (RMSEP = 3.34 °C, R_2 = 0.67).

The application of all models should be carried out with suitable precautions. Our results suggested that freshwater testate amoebae could contribute to a better understanding of the ecological integrity and its vulnerability in inland aquatic environments.

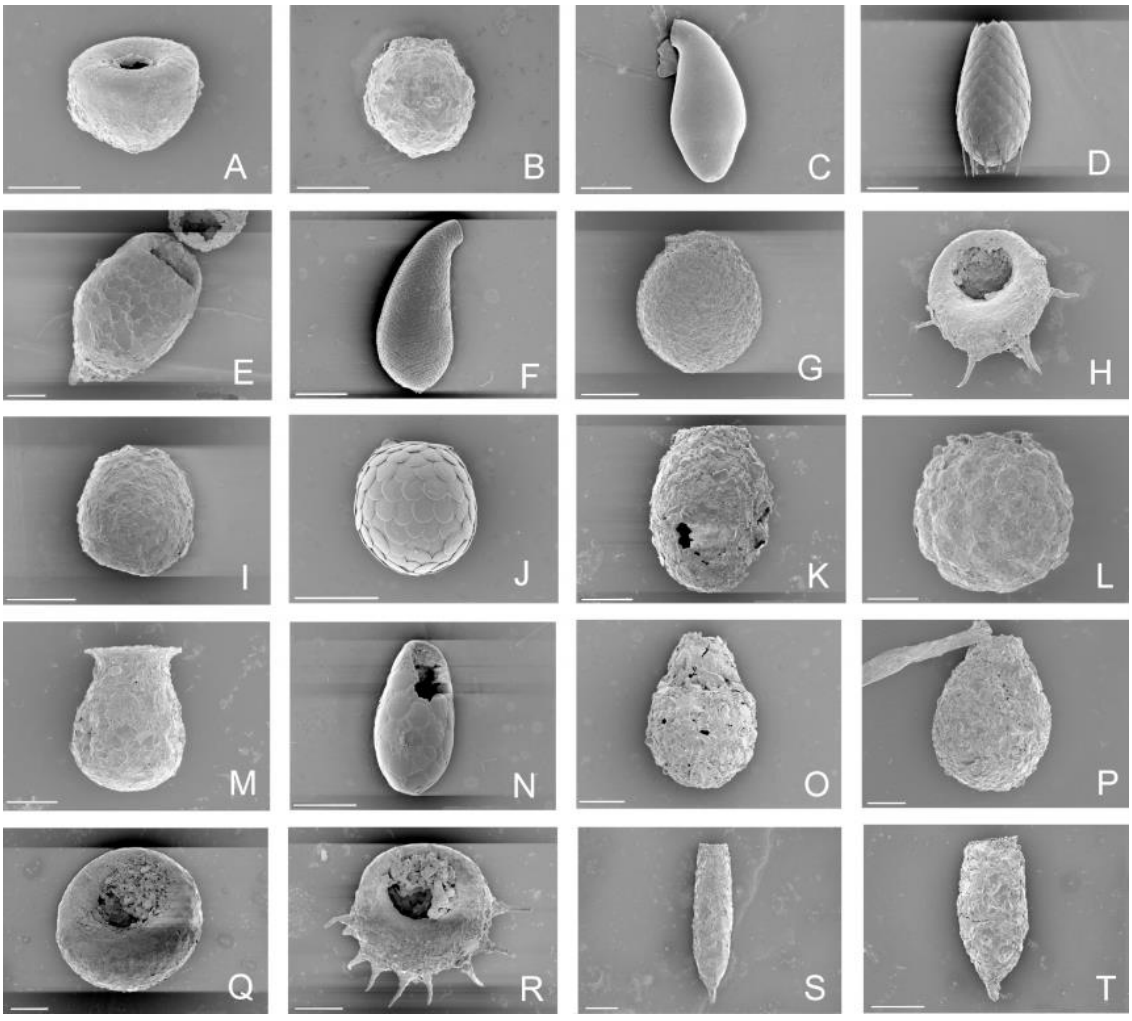

Figure 1Testate amoebae