

Abstract

Communication mediated by chemical substances – infochemicals – is one of the oldest and most important forms of communication on Earth, used by all organisms. Among the most important infochemicals are pheromones, which have also been discovered in diatoms. Diatoms are a diversified group of photosynthesizing unicellular microorganisms that contribute significantly to global primary production and global silicon and carbon cycles.

Pheromones have been confirmed in four species of pennate diatoms: *Seminavis robusta*, *Cylindrotheca closterium*, *Pseudo-nitzschia multistriata* and *Nanofrustulum trainorii*. In *S. robusta* the chemical structures of the pheromones are also known – they are peptidic substances. In the other species the chemical structures of the pheromones are yet to be elucidated. The activity of the pheromones of this species is also influenced by external factors such as cell size, silicon availability, or the presence of bacteria that may promote or inhibit their function. This paper summarizes the current knowledge of diatom pheromones, including their structures, mechanisms of action, and external influences on their function.