The diatom genus Chaetoceros is one of the most abundant marine phytoplankton in coastal and oceanic waters worldwide. Within this genus, Chaetoceros socialis has been cited as one of the most common species. However, recent studies from different geographic areas have shown the presence of pseudo-cryptic diversity within the C. socialis complex. Members of this complex are characterized by curved chains (primary colonies) aggregating into globose clusters, where one of the four setae of each cell curves toward the center of the cluster and the other three orient outwards. New light and electron microscopy observations as well as molecular data on marine planktonic diatoms from the coastal waters off Chile revealed the presence of two new species, Chaetoceros sporotruncatus sp. nov. and C. dichatoensis, sp. nov. belonging to the C. socialis complex. The two new species are similar to other members of the complex (i.e., C. socialis and C. gelidus) in the primary and secondary structure of the colony, the orientation pattern of the setae, and the valve ultrastructure. The only morphological characters that can be used to differentiate the species of this complex are aspects related to resting spore morphology. The two newly described species are closely related to each other and form a sister clade to C. gelidus in molecular phylogenies. We also provide a phylogenetic status along with the morphological characterization of C. radicans and C. cinctus, which are genetically related to the C. socialis complex.

Key index words: Chaetoceros; Chaetoceros dichatoensis sp. nov.; Chaetoceros sporotruncatus sp. nov.; diatoms; phylogeny; spores; taxonomy