

Abstract Submitted
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Digital Holographic Study of the Swimming Characteristics of *Prorocentrum minimum* (Dinophyceae)¹ MYONG SOHN, KYUNG SEO, SANG LEE, POSTECH — The present study investigated the swimming characteristics of dinoflagellate *Prorocentrum minimum*, which is one of the cosmopolitan harmful algae species. A digital holographic PTV technique was employed to get the swimming trajectories of hundreds of *P. minimum* cells and to extract the kinematics of the flagella beating motion. The swimming speeds of *P. minimum* cells in a helical motion ranged from 20 to 140 $\mu\text{m} \cdot \text{s}^{-1}$ and the average value of them was about $90 \pm 60 \mu\text{m} \cdot \text{s}^{-1}$. The mean value of the helix radius and pitch of the swimming trajectories were $3.8 \pm 1.6 \mu\text{m}$ and $34 \pm 15 \mu\text{m}$, respectively. The longitudinal flagellum beaten with a planar wave at the frequency of about 100 Hz. The transverse flagellum beaten with a helical wave at the frequency of about 42 Hz. Effect of sea water viscosity was also analyzed. The increase of sea water viscosity reduced the flagella beating frequency and the swimming speed of *P. minimum*.

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