**Effective fucoxanthin production in the flagellate alga *Poterioochromonas malhamensis* by coupling heterotrophic high-cell-density fermentation with illumination**

Hu Jin\*†1, Yufen Guo†2, Yanhua Li†1, Baofeng Chen1, Haiyan Ma1, Hongxia Wang1, Lan Wang1, Danni Yuan3

1Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan 430072, China

2School of Life Science and Food Engineering, Huaiyin Institute of Technology, Huaian 223003, China

3School of Environmental Ecology and Biological Engineering, Wuhan Institute of Technology, Wuhan 430205, China

† Contributed equally to this work

\* Corresponding to Hu Jin ([jinhu@ihb.ac.cn](mailto:jinhu@ihb.ac.cn))



**Figure 1.** Experimental photographs of dark (A) and illumination-coupled (B) fermentation cultivation



**Figure 2.** Emission light spectra of white light (A), red light (B) and blue light (C)



**Figure 3.** HPLC chromatogram of pigment samples from dark 48 h cultivation, dark 120 h cultivation, light 120 h cultivation, and standard pigment sample



**Figure 4.** Comparison of culture samples from dark and light cultivation with inorganic and organic N sources