Improved mass cultivation of the marine diatom *Chaetoceros calcitrans* for shellfish hatcheries

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So, thanks. Enjoy the thesis!

Simon T.

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Chapter 1 Abstract

A medium for the optimal growth of *Chaetoceros calcitrans* in batch and continuous culture systems was developed. A method was developed for continuous culture of *C. calcitrans* that was free from detrimental infection by bacteria. The concentration of tested nutrients in the developed medium were sodium nitrate, 160 mg/L; sodium dihydrogen orthophosphate, 40 mg/L; and the molar Si:N ratio was 0.25 (99.9 mg/L sodium metasilicate). Isolated bacterial strains were shown to be detrimental to the growth of *C. calcitrans* in batch and continuous culture. Electrolytically treated water was suitable for the growth of *C. calcitrans*, but a subsequent flourish of bacterial growth at the late exponential phase reduced the quality of the algal cells and made the culture unsuitable for feeding to shellfish larvae. Heat treated water (95°C for ten and a half minutes) gave stable growth for the continuous culture of *C. calcitrans* in 38 L plastic bioreactor bags for at least 38 days. The superficial gas velocity in the culture bags was 0.09 L/min. Higher superficial gas velocities (e.g. 0.40 L/min were detrimental to *C. calcitrans*.