

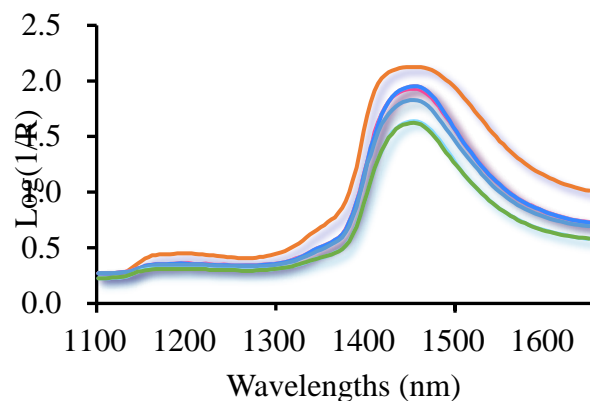
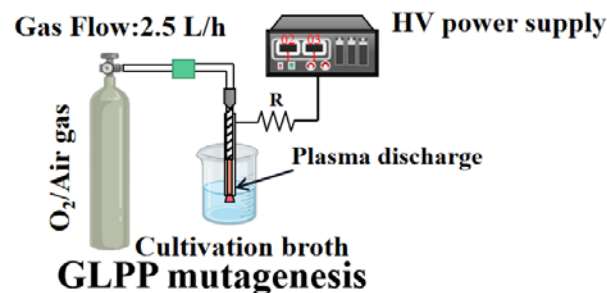
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Integrative combination of gas–liquid-phase plasma mutagenesis and high-throughput screening to enhance eicosapentaenoic acid production by *Schizochytrium* sp.

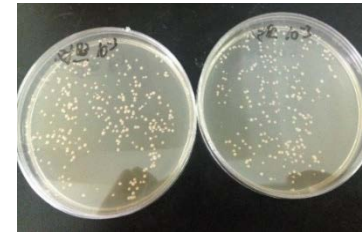
Key words: Eicosapentaenoic acid (EPA); *Schizochytrium* sp.; Mutagenesis; High-throughput screening; Near-infrared spectroscopy (NIRS)

Research Summary

This study developed an innovative strategy to increase EPA production in *Schizochytrium sp.* involving gas-liquid-phase plasma (GLPP) mutagenesis followed by near-infrared spectroscopy (NIRS) screening, which enables the identification of high-yield strains from a 1469 mutant library in just one week. The study explored in the following aspect:



- **GLPP mutagenesis of *Schizochytrium sp.***
- **NIRS high-throughput screening of high-yield strains for EPA production**
- **Medium optimization and fed-batch fermentation for high efficient EPA production**



Innovation points

- Application of gas-liquid-phase plasma (GLPP) mutagenesis to *Schizochytrium* sp.

- Establishment of high-throughput screening method based on near-infrared spectroscopy (NIRS) technology.

- Identification of high-yield strains and optimization of fermentation process to enhance EPA production.

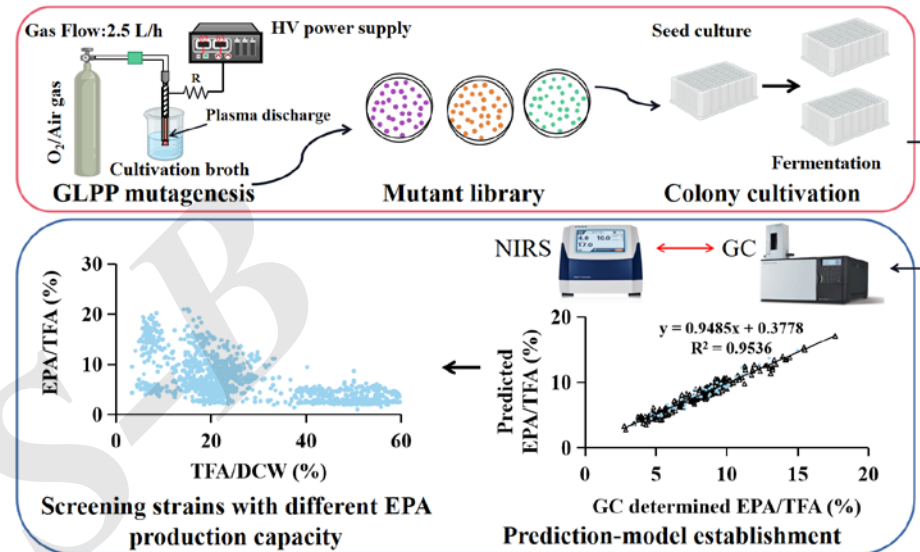


Figure 1

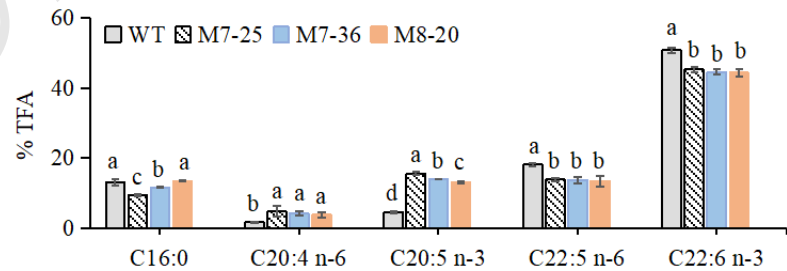


Figure 4(f)

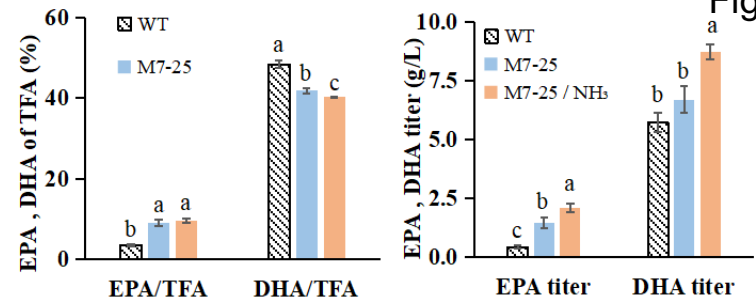


Figure 6(b,c)