

IDENTIFICATION OF PHENOLIC COMPOUNDS EXUDED BY *Emiliana huxleyi* UNDER ACIDIFICATION CONDITIONS

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Abstract: Extracellular phenolic compounds released by *Emiliana huxleyi* cultured under four different pH (8.25, 8.1; 7.9 and 7.75) were identified (Samperio-Ramos et al., 2017). Therefore, samples of seawater enriched with exudates (700 mL) were passed through cartridges Chromabon Easy (Macherey-Nagel, 500 mg). The retained analytes were eluted with MeOH (5 mL), which was evaporated to dryness, and dissolved in MeOH (300 μ L) (Rico et al., 2013). Chromatographic analysis was performed with a Jasco LC-4000 HPLC, a Varian C18 column (250 mm \times 4.6 mm, 5 μ m), and eluents Milli-Q water with 0.1% formic acid (A) and methanol (B). The elution conditions were: 0–5 min, 80% A isocratic; 5–30 min, linear gradient from 80% to 40% A. Simultaneous monitoring for quantification was set at 270 nm (gallic acid, protocatechuic acid, catechin, vanillic acid, rutin, epicatechin, and syringic acid) and 324 nm (gentisic acid, coumaric acid, and ferulic acid) (Santiago-Díaz et al., 2021). Gallic, protocatechuic, vanillic and syringic acids were detected over the limits of quantification. Syringic acid was identified in all samples and vanillic acid was only detected in cells cultured at pH 8.25 and 8.1. Protocatechuic acid was the most abundant compound at pH 7.75 and 8.25 (6.75 and 4.65 μ g mL⁻¹ respectively), and syringic acid at pH 8.1 and 7.9 (2.08 and 1.85 μ g mL⁻¹ respectively). The total content of these four compounds was higher at pH 7.75, followed by pH 8.25, 8.1 and 7.9 (8.73, 8.09, 3.15 and 2.99 μ g mL⁻¹ respectively). The highest productivity per cell was attained at pH 7.75, followed by pH 8.25 (1.43×10^{-8} and 1.22×10^{-8} μ g cell⁻¹ respectively).

The exudates reducing power, expressed as neutralization percentage of 1,1-diphenyl-2-picrylhydrazyl radical (Bondet et al., 1997), were 18.2, 18.7, 23.2, and 40.2% at pH 7.75, 8.25, 8.10, and 7.9 respectively.

Acidification conditions affect the amount, composition and antioxidant activity of *Emiliana huxleyi* exudate.

Key words: Seawater, *Emiliana huxleyi* exudate, phenolic compounds, reducing power, solid phase extraction, HPLC

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