عنوان مقاله:

Adding Micronutrient Of Fecl۲ And Zncl۲ To Culture Medium In Order To Enhance High-Value Bioproduct Extraction From Microalgae

محل انتشار:

سیزدهمین کنفرانس بین المللی راهکارهای نوین در مهندسی، علوم اطلاعات و فناوری در قرن پیش رو (سال: 1401)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

High-value bioproducts extraction from microalge has received increasing attraction as a sustainable and promising alternative for traditional fuel sources. In this research, adding different trace elements (TEs) of FeCl۲ and ZnCl۲ to culture medium was evaluated to improve microalgae growth rate and enhance high-value bioproduct extraction from biomass. To do this, the effect of different dosage of TEs on biomass growth rate and bioproducts of protein, carbohydrate and lipid extraction were investigated. According to the results, maximum biomass concentrations of ۳.۲۴ and ۳.۸۴ g/L were achieved after adding ۰.۲ and ۰.۵ mg/L of FeCl۲ and ZnCl۲, respectively. While, in the case of microalgae without adding TEs, the maximum biomass concentration was ۲.۲ g/L during ۱۲ days cultivation. The results revealed that treating microalge culture medium with micronutrients can significantly improve the high-value bioproducts of biomass. Maximum bioproducts values increased from ۷ to ۱۷ and ۱۹ %MDW (carbohydrate) and from ۲۱ to ۴۵ and ۵۲ %MDW (protein) and from ۱۱ to ۲۳ and ۲۵ %MDW after adding ۰.۲ and ۰.۵ mg/L of FeCl۲ and ZnCl۲, respectively. The results of this research prove that treating microalgae culture medium with an appropriate level of .TEs can significantly enhance both biomass growth rate and high value bioproduct extraction from biomass

کلمات کلیدی:

Microalgae biomass, High-value bioproducts, lipid, protein, carbohydrate