TRABALHOS APRESENTADOS EM EVENTOS

CAVALCANTI, L. P. A. N.; TEIXEIRA, C. M. L. L.; MARTINS, R. C. C. Chemical profile of crude extracts of *Arthrospira platensis* biomasses cultivated in different culture media. In: BRAZILIAN CONFERENCE ON NATURAL PRODUCTS, 6., 2017, Vitória, ES. **Proceedings**... São Paulo: Galoá, 2017. 1 p.

RESUMO: Introduction: Arthrospira platensis is a microalga which belongs to the group Cyanophyta, of great pharmacological and alimentary value due to rapid growth and a high productivity of several compounds as proteins, vitamins, carotenoids and the phycocyanin pigment, which have a broad spectrum of biological activities.[1,2]. Thus, the optimization and preparation of a low cost culture medium and the production of an extract that achieves a higher concentration of biomolecules of commercial interest has been of great value to scientists over the years. Objectives: Evaluate the chemical profile of ethanolic and methanolic extracts of A. platensis biomass cultivated in different media (Zarrouk and modified F2) in order to evaluate qualitative and quantitative differences in the production of its metabolites. Methodology: A platensis was cultivated in erlenmeyers containing liquid Zarrouk medium modified by George and F2 medium with the following modifications: superior concentration of nitrate and phosphate (equivalent to Zarrouk medium), and treatment with EDTA (for the removal of turbidity from precipitate of calcium salts). Both cultures were grown under fluorescent light 24h, T=22ºC, under constant stirring. At the final of the cultivation, biomass was recovered by filtration and lyophilized. Dried biomasses were extracted for 24 h with MeOH /H2O 8:2 (Z-MeOH and F2-MeOH) or 100% EtOH (Z-EtOH and F2-EtOH). The crude extracts obtained were analyzed by TLC and HPLC. Results: Preliminary analysis by TLC, eluted in an apolar mobile phase confirmed the presence of □-carotene as the substance of higher Rf, which was confirmed by comparison with a standard sample of this carotenoid[3]. Phycocyanin and phenolic compounds were retained at the beginning of elution starter point due to their high polarity[3]. In UV light, 360 nm range, it was possible to observe a very strong blue color only in the spot where the sample F2-MeOH was applied, which may suggest that this culture medium may have optimized the production of a more polar compound in the microalgae. In the case of the polar eluent, phenolics elute through the plate. As previously reported, at 360 nm, it was also possible to observe a very strong blue color in the spot where the sample F2-MeOH was applied. Analysis by HPLC-DAD showed a significant extraction of substances in the ethanolic crude extracts. The crude extracts originated by Zarrouk medium showed a higher production of carotenoids, as confirmed by their UV spectra in 450 nm, whereas the crude extracts originated from F2 medium seems to have a major production of a single polar compound whose UV spectra at 280 nm suggests that it may be a phycocyanin. TLC and HPLC experiments data suggest that the extractions with ethanol led to a higher extraction of carotenoids, phycocianins and chlorophyll, as well as of other minor substances. Conclusion: Previous methodologies describe only the use of MeOH to obtain crude extracts of A. platensis biomass. Based upon our results, it is possible to suggest that extraction with EtOH, a slightly less polar solvent

seems to be an interesting alternative, since it can extract more molecules present in the biomass, mainly carotenoids. Zarrouk medium seems to produce a greater amount of carotenoids than F2 medium. LC-MS analysis will be performed to characterize the major component produced by the crude extracts from F2 medium and carotenoids present in all extracts obtained. Bibliography: 1 Nongporn et al, J. Appl. Phycol. (2010) 22: 599-605 2Brand et al. Handbook of Microalgal Culture: App. Phycol. and Biotech., 2nd Ed, 2013 3Zarzycki et al, J. Chromatogr. A 1218 (2011) 5694-570

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