## Accepted Manuscript

Title: Supercritical fluid extraction of phycocyanin and investigation of cytotoxicity on human lung cancer cells

Author: Irem Deniz Mehmet Ozgun Ozen Ozlem

Yesil-Celiktas

PII: S0896-8446(15)30160-1

DOI: http://dx.doi.org/doi:10.1016/j.supflu.2015.10.015

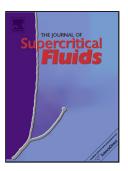
Reference: SUPFLU 3484

To appear in: J. of Supercritical Fluids

Received date: 17-8-2015 Revised date: 21-10-2015 Accepted date: 22-10-2015

Please cite this article as: I. Deniz, M.O. Ozen, O. Yesil-Celiktas, Supercritical fluid extraction of phycocyanin and investigation of cytotoxicity on human lung cancer cells, *The Journal of Supercritical Fluids* (2015), http://dx.doi.org/10.1016/j.supflu.2015.10.015

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Supercritical fluid extraction of phycocyanin and investigation of cytotoxicity on human

lung cancer cells

Irem Deniz, Mehmet Ozgun Ozen, Ozlem Yesil-Celiktas\*

Department of Bioengineering, Faculty of Engineering, Ege University, 35100 Bornova-Izmir,

Turkey

Abstract

In this study, a step-by-step optimization approach was carried out for supercritical fluid

extraction (SCF) of phycocyanin (PC) from Spirulina platensis, where pressure, temperature, co-

solvent ratio and process duration were investigated. The elicited parameters were 250 bar, 60°C,

10% ethanol as co-solvent at a dynamic duration of 45 min yielding PC amount of 90.74% and

PC purity of 75.12%. Extracts obtained with SCF were tested against lung cancer cell line (A549)

to determine cytotoxicity and compared to that obtained from solvent extraction. SCF extract had

an IC<sub>50</sub> value of 26.82 μg/mL, whereas that value was 36.94 μg/mL for solvent extract indicating

a lower cytotoxic effect. Overall, the results revealed significant information for PC extraction

using supercritical fluids as an alternative to conventional methods and the possibility to include

PC in daily diet for preventive purposes against highly lethal lung cancer.

Keywords: Supercritical fluid extraction; Spirulina platensis; phycocyanin; cytotoxicity; A549

lung cancer cells.

\*Corresponding author: Tel: +90 232 343 44 00, Fax.+90 232 374 4289

E-mail: ozlem.yesil.celiktas@ege.edu.tr (O. Yesil-Celiktas)

1

## Download English Version:

## https://daneshyari.com/en/article/6670806

Download Persian Version:

https://daneshyari.com/article/6670806

<u>Daneshyari.com</u>