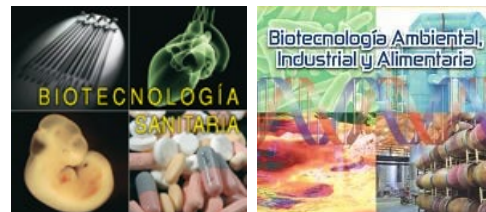


Poster

Production of pigments for the textile industry from *Monascus* *purpureus* and *Arthospira platensis*.

Serrano Ortiz, M., Camacho Cristobal, JJ., Bermúdez
Luque, A.

I+D+i / Nucleus Biolab S. Coop. And., C. Astronoma Cecilia Payne,
14014 Córdoba



Tutor académico: Juan José Camacho Cristobal

Keywords: *Monascus purpureus*; *Arthospira platensis*; eco-friendly pigment extraction; dyes

ABSTRACT

Textiles dyeing in the textile industry involves significant energy and water consumption, as well as the use of contaminating compounds, which makes it an unsustainable practice. In response to this concern, the idea of returning to natural and non-synthetic dye production, specifically from microbial sources, has emerged [1]. In the present work, we used the fungus *Monascus purpureus* (which grows on rice and other residues from the agri-food industry) and the cyanobacterium *Arthospira platensis* (which proliferates in aquatic environments) for pigment production. To achieve this objective, the growing conditions for these two species were optimized using different culture media. Additionally, the extraction of target pigments was fine-tuned employing different concentrations of organic solvent and the freezing-thawing method [2]. Two dye solutions were obtained – one with a reddish hue from to *M. purpureus* monascorubins, and another with a greenish-blue tint from *A. platensis*, rich in phycocyanins. A dyeing test on cotton and wool fibers was conducted using different mordants [3]. This study aims to provide a starting point for the eco-friendly industrial-scale production of these dyes, taking into consideration market needs and environmental concerns.

REFERENCES

1. Kramar, A., & Kostic, M. (2022). Bacterial Secondary Metabolites as Biopigments for Textile Dyeing, *Textiles*, 2(2), 252-264. <https://doi.org/10.3390/textiles2020013>
2. Tan, H. T., Khong, N. M., Y. S., Ahmad, S.A., & Yusiff, F. M. (2020). Optimization of the Freezing-Thawing Method for Extracting Phycobiliproteins from *Arthospira* sp. *Molecules*, 25(17), 3894. <https://doi.org/10.3390/molecules25173894>
3. Papa, E. (2018). Teint: Investigación de tintes naturales, aplicado a la lana como fibra natural. Tesis de grado. *Universidad de la república (Uruguay). Facultad de Arquitectura, Diseño y Urbanismo. Escuela Universitaria Centro de Diseño*. <https://hdl.handle.net/20.500.12008/20274>