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MORPHOLOGICAL AND PHYSIOLOGICAL CHANGES IN *TETRAHYMENA PYRIFORMIS* FOR THE *IN VITRO* CYTOTOXICITY ASSESSMENT OF TEXTILE DYESNicolina Dias^a, Cenek Novotny^b and Nelson Lima^a^a Centro de Engenharia Biológica - IBQF, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal^b Laboratory of Experimental Mycology, Institute of Microbiology, Academy of Sciences of the Czech Republic, Videňská

Many new synthetic dyes were introduced with respect to their applications on various industries, textile dyes being an important group. Most *azo* dyes often used in textile industry are synthesized from aromatic amines, that have often been shown to have a carcinogenic effect. This effect is, at present, the far most important factor considering the manufacture of colorants and their intermediates. These hazards are directly or indirectly related to acute or chronic toxicities and depend on the nature of the corresponding molecule.

In *Tetrahymena pyriformis* various endpoints can be used to evaluate the cytotoxic effects of xenobiotics. Population growth impairment is an often-used sublethal toxic endpoint for organic and inorganic compounds, which does not require special technical expertise. Other parameters such as phagocytosis rate can be assessed and have been proposed to indicate the physiological and energetic state of the ciliate, when in contact with pollutants. Growth rate and morphological changes are thought to be manageable toxicological assays because of their simplicity and reproducibility. Calcein-AM/EthD-1 (CAM/EthD-1) has also been used to assess *T. pyriformis* membrane damage.

In this work, *T. pyriformis* was used as a model organism to assess the effects of two *azo* and two antraquinone-dyes, in a series of *in vitro* cytotoxicity, namely population growth impairment, CAM/EthD-1 test, grazing and morphometric assay. The 48 h-tests performed included simple and fast bioassays that provided overall information on the morphological and physiological state of the cells exposed to different concentrations of the dyes.

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