

INFLUENCE OF ORGANIZED MOLECULAR SYSTEMS ON THE PHOTODEGRADATION OF THIABENDAZOLE IN AQUEOUS SOLUTION.

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Surfactants are molecules that present an amphipatic structure, with a hydrophobic chain and hydrophilic head. Over a determined concentration (critical micellar concentration) these molecules form aggregates known as micelles (Figure 1). Depending on the nature of the hydrophilic fraction, the surfactant can be classified into: anionic, cationic, zwitterionic and non ionic. It has been widely reported the advantages of these molecular systems in analytical chemistry for the extraction and determination of compounds from several matrix of environmental interest¹.

Benzimidazole derivatives are pollutants mainly employed in agriculture like broad spectrum fungicides used to protect several crops, both during field and post-harvest treatments. The majority of these substances are applied directly over soils, or sprayed the over crop fields and hence released to environment. One of the most utilized is Thiabendazole. Previous studies report its photodegradation in different media where the kinetic parameters as well as the subproducts obtained are determined^{2,3}.

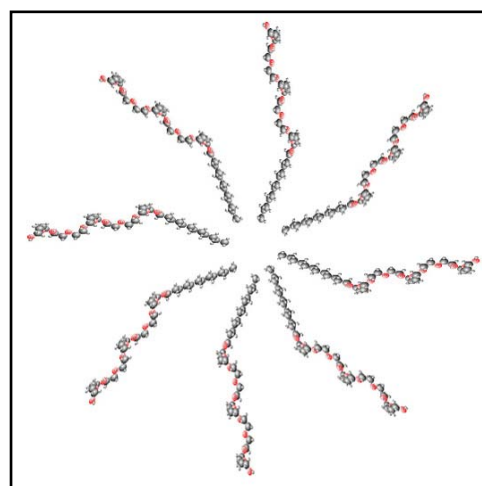


Fig. 4.- Representation of a Polyoxyethylene (10) Lauryl Ether micelle in polar medium.

In the present work, we study the influence of the presence of surfactants in aqueous solution on the Thiabendazole photodegradation, under UV-light ($\lambda \geq 290$ nm.) through spectrofluorimetric measurements. For this purpose three surfactants have been selected: Polyoxyethylene (10) Lauryl Ether (non ionic), Lauryl Sulfate Sodium (anionic) and Cetyltrimethylammonium Bromide (cationic). The study is carried out with different analyte and surfactant concentrations and the results are compared with those obtained from the photodegradation in water.

References:

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