

PHOTOCHEMISTRY IN THE MICROWAVE OVEN

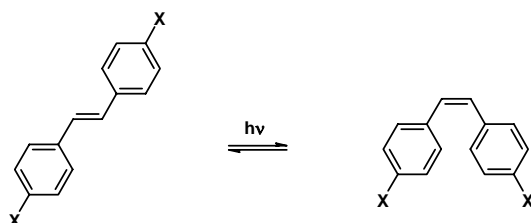
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The fact that electrodeless discharge lamp (EDL) generates ultraviolet radiation when placed into the microwave field has been known for long time [1]. The low powered and low-pressure EDLs were utilized in spectroscopy four decades ago. However, its application for organic photochemistry has been shown only recently in our papers [2-5].

The emission spectra of Hg- and S-EDLs were measured [6,7] in modified MW oven using USB2000 spectrometer with fiber-optic probe and operating software OOIrrad-C from Ocean Optics. In recent paper [8] was described the easy preparation of various EDLs for photochemical applications using our original equipment.

The preparation of EDLs has to be connected with a steady evaluation method to find the best physico-chemical operation parameters. Therefore, the EDLs were first characterized by physical aspects (mass of filling material, pressure of filling gas, temperature profiles and minimum MW output power). Secondly, the chemical evaluation of EDLs was performed on *cis-trans* photoisomerization of stilbene derivatives. The influence of X-substituents (X = H, OCH₃, NO₂) on the UV-absorption ability of *trans*-stilbene derivatives (bathochromic shift) has taken advantage for the test and evaluation of the EDL various emission outputs.



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