

## **On the Monitoring of the UV Photodegradation of Alpha-Tocopherol by Thermal Lens Spectroscopy and HPLC**

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Vitamin E is a liposoluble substance in which its most biologically active component is alpha-tocopherol, due to its capability of capturing free radicals and breaking lipid peroxidation chain reactions, and as a consequence preventing the destruction of lipids. Photo-oxidation of alpha-tocopherol is a big concern because their degradation products not necessarily have the same beneficial effects than intact vitamin. Due to the handling and storage of this vitamin, it is important to evaluate the effect of sunlight on the stability of alpha-tocopherol, having at hand methods with enough sensitivity to evaluate the effects of photons of different energy. Thermal lens has been shown to have very high sensitivity, being able to detect even traces in liquids [1]. In this work, the capability of the thermal lens technique to detect minimal changes during UV induced photodegradation of alpha-tocopherol and its reaction products is explored. Thermal lens measurements of the degradation process were measured using two lasers one at 488nm and the other at 638nm. The kinetic process was also studied by liquid phase chromatography and UV-Vis spectroscopy.

### References

[1] Manabu Tokeshi, Jun Yamaguchi, Akihiko Hattori, and Takehiko Kitamori. Thermal Lens Micro Optical Systems. *Anal. Chem.* 77,626-630 (2005).