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## Acta Medica Iranica

2009;47(4) : 29-35

### Original Article

#### UV-Lamp Intensity Determination Without Use of Radiometer

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Received: October 15,2008  
 Accept : November 24,2008  
 Available online: February 28,2009

#### Abstract:

**Background and Objectives:** Measurement of light intensity is a recommended practice for insuring the delivery of required germicidal dose in disinfection operations by UV lamps. Use of sensitive to light chemicals which is the base of actinometric methods could be considered as a suitable manner for estimating the intensity of UV lamp in circumstances that special radiometers are not available.

**Materials and Methods:** Iodide-iodate mixture was used as an actinometer for this study. The light intensities of a UV lamp (LP 25W) were first determined by a special UVC radiometer at certain distances from the lamp. Then the test of determining the suitable period of time for irradiation of actinometer was accomplished. Finally, the color changes of iodide - iodate solutions at the predetermined distances were evaluated at the wavelength of 352 nm. The latter analysis can be done by a common (visible) spectrophotometer.

**Results:** Results indicated that use of this actinometer is more suitable at the distances of 35 to 60 cm from the center of the lamp bulb, since iodide-iodate solution has a detectable color change at this range of distance in one minute irradiation which may be considered as a reasonable time for actinometric operations.

**Conclusion:** Although all kinds of actinometers should not be regarded as precise as special radiometers and there would be need to use pure chemicals for actinometric determination of light intensity, it can be claimed that the recommended procedure in this study which is the newest actinometric method can be used in acceptable evaluation of UV intensity with least difficulty in providing necessary instruments.

#### Keywords:

UV lamp , radiometry , actinometry , Iodide-Iodate , disinfection practices

TUMS ID: 12642

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