



4. Discussion

There are three wavelength bands of Ultraviolet radiation

- UV-A, between 320 and 400 nm
- UV-B, between 280 and 320 nm
- UV-C, between 200 and 280 nm

The mercury discharge tube emits most of its radiation at 253nm which is in the UV-C range and this wavelength is well known to have bactericidal effects; this type of tube are in widespread use in sterilisation industries.

These tubes kill bacteria because, the shorter the wavelength, the more damaging it is to organisms. Ultraviolet light damages DNA causing breaks in the double strand helix and either kills the bacteria or prevent it from replicating; it has been estimated that 3 – 4 breaks can kill E.coli.

The experiments performed show evidence that E.coli are killed if exposed to UV radiation from the mercury discharge tube at a distance of 15cm and for longer than between 5 and 10 minutes.

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