Using UVGI in Cannabis Cultivation Facilities

The challenges for cannabis growth

The medicinal cannabis market has been seeing strong growth in this sector for many years now with more and more players entering the market. Cultivation is done indoors in a controlled environment but still challenges remain with the proliferation of microbials like Sphaerotheca macularis (Powdery Mildew) and Botrytis cinerea (Grey mould). If left unchecked, these microbes can significantly affect the crop yield and the profits of the operation. Standard HVAC systems can be a perfect breeding ground for these microbes and be very efficient in spreading the microbials throughout the building.

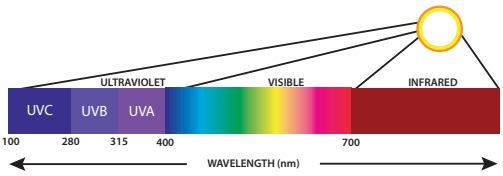
WHAT ARE UV-C RAYS?

Ultraviolet Germicidal Irradiation is known since the 60's as a good physical method to control growth and distribution of microbial organisms, pathogens, spores, moulds, etc.

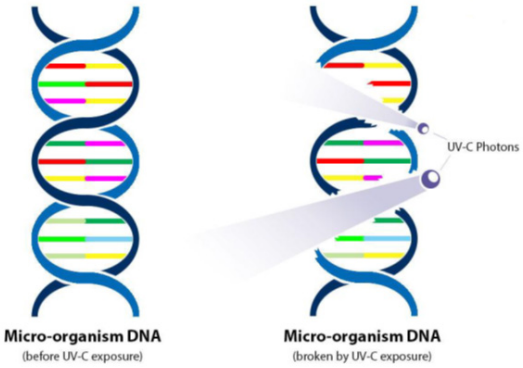
Light in a broad sense can be divided into the following, visible, infra-red and ultraviolet rays. Ultra-violet rays (invisible) can be classified in:

- UV A (with tanning properties)
- UV B (with therapeutic properties)
- UV C (with germicidal properties)

Disinfection with traditional chemicals can leave hazardous residues behind which is not ideal for human consumption. The use of Ultraviolet Germicidal irradiation to treat the air and surfaces within these building has shown to be very effective in reducing the contamination without leaving behind any residues, and therefore increasing the crop yield. The best part is these microorganisms have yet to show any immunity to UV-C rays unlike those treated with chemicals.



The absorption of a UV photon by the DNA of microorganisms causes a destruction of a link in the DNA chain, and consequently the inhibition of DNA replication.
The germicidal effects of the UV C radiation (253.7nm wavelength) destroy DNA of Bacteria, Viruses, Spores, Fungi, Moulds and Mites avoiding their growth and proliferation.



UVGI technology is a physical disinfection method with a great costs/benefits ratio, it's ecological, and, unlike chemicals, it works against every microorganism without creating any resistance. No ozone is produced through the use of the UV-C lamps.

Each microorganism has a specific UV resistance threshold, called DOSE. The specific dose needs to be delivered to get a proper disinfection level, which is expressed in LOG REDUCTION: 1 Log = 90%, 2 Logs = 99%, 3 Logs = 99.9% etc.

Therefore, for some microorganisms a low level of UV POWER is sufficient to be eliminated, while for others it takes more power to get same elimination level or alternatively a longer exposure TIME.

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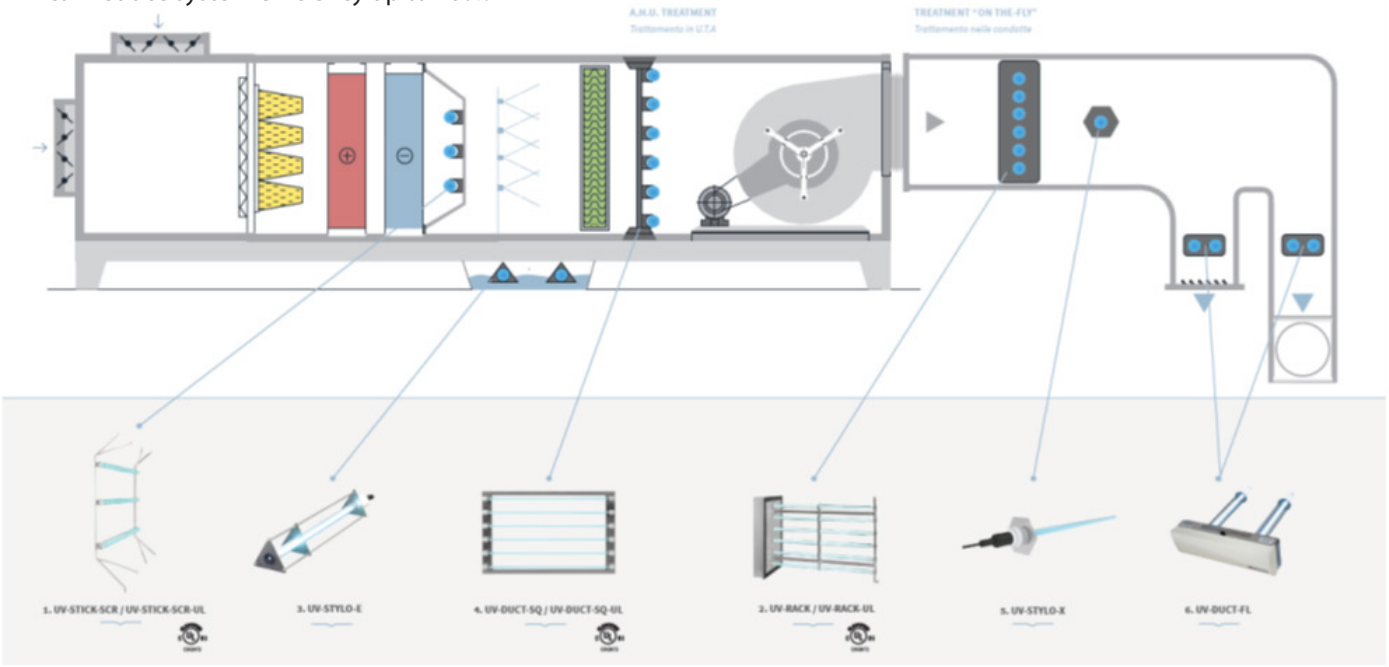
Treatment Solutions

There are several approaches to using UVGI as a treatment solution which includes air and surface disinfection methods.

Treatment in AC system

Most common approach is to install UVC devices within the AC system to disinfect the coils. This reduces the growth of the microorganisms and therefore minimizes the spread through the ducting system into the building.

Air recirculation, temperature fluctuations and humidity allow microorganisms to combine with each other in complex ways and settle all over surfaces inside the AC system in the form of an unpleasant biofilm. This biofilm adheres particularly in between the fins of heat exchangers (it settles in water collection tanks and clog the filters in the ducts). A biofilm less than 5 mm can reduce system efficiency up to 40%.



Air Disinfection with Portable UV-FAN

Not all areas may be covered by the AC system. In these cases, the use of the UV-FAN allows for an easy implementation of UVC disinfection without any risk to people. This device can be wall mounted or supplied as a portable unit.

Surface Disinfection

Microorganisms can easily spread from the work benches, seedling trays and tools. Surface disinfection will help address this spread using UV-C rays. Solutions include direct surface irradiation of work surfaces when room is not occupied by either fixed UV-DIRECT or portable UV-STICK-ST units. Tools and seedling trays can also be disinfected with the use of UV-BOX and UV-CABINETS.

Why choose LAF Technologies?

LAF Technologies (Laftech) is an Australian owned and operated company that has been in the forefront of contamination control since 1987. Laftech has now teamed up with Light Progress of Italy to bring into Australian a high quality, tested and proven solution. We offer the widest product range of UVGI Devices on the market with renown Italian quality.

Benefits to the client:

- Widest range of UV products providing the most appropriate solution.
- Products validated through University testings.
- Local team to assist in presales and aftersales.
- Service and Spares support.

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