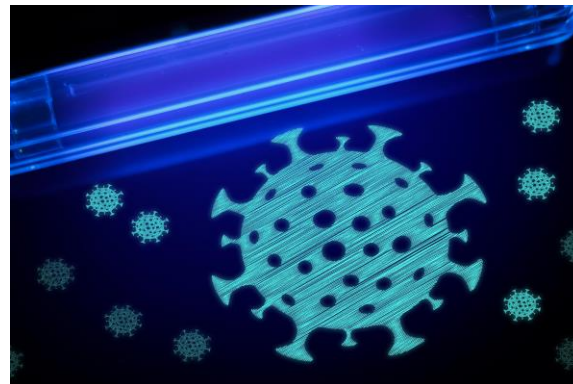


UV BASED DISINFECTION DEVICES

MADE BY:
GROUP - 4

- ▶ 20BCE2355 DEVOJOYTI PAL
- ▶ 20BCE2694 ADNAN KALIM
- ▶ 20BCE2707 PATTETI REEHA MILAN
- ▶ 20BCE2838 SARANG SOMAN
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- ▶ 20BEE0297 KRRISH BHALLA
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Contribution Of All Members:

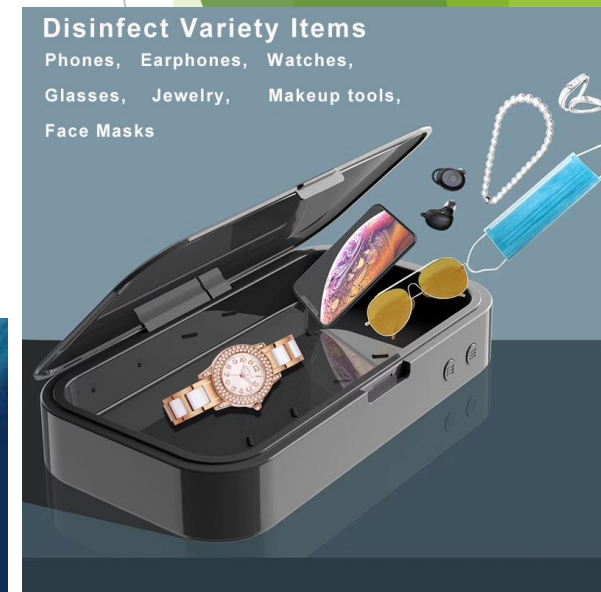
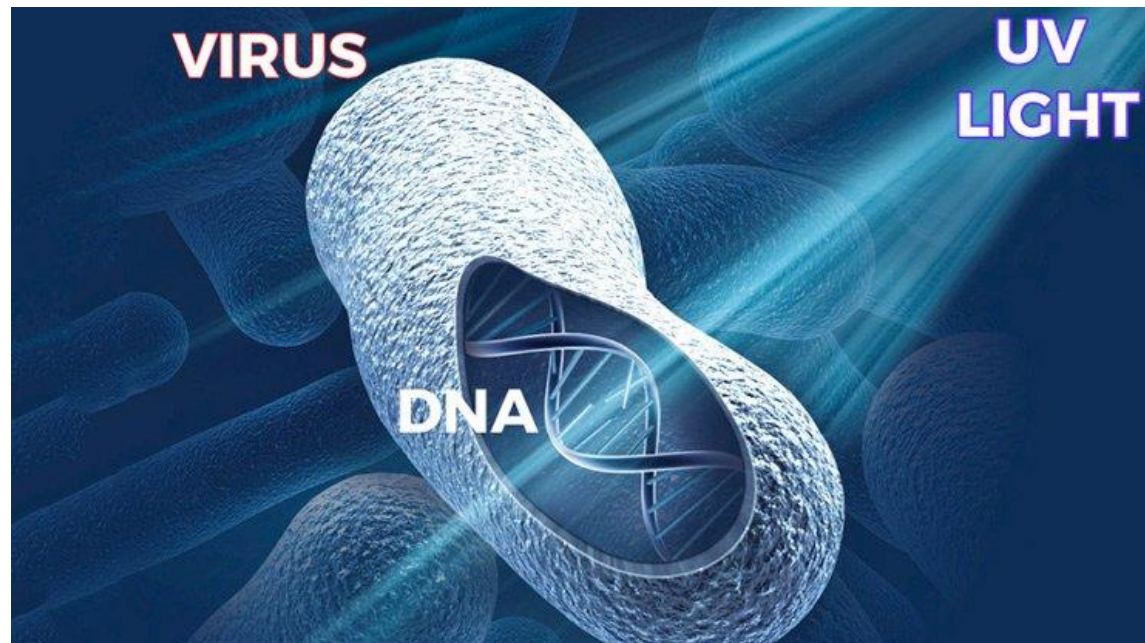
- | | |
|--|-----------------------|
| ▶ Introduction & Technical Details | - DEVOJOYTI PAL |
| ▶ Comparison between UV & Chemical Disinfectants | - ADNAN KALIM |
| ▶ Health & Safety Concerns of UV Disinfectants | - PATTETI REEHA MILAN |
| ▶ Benefits of UV Disinfectants Part 1 | - S PRASHANTH |
| ▶ Benefits of UV Disinfectants Part 2 | - ADITYA TOSHNIWAL |
| ▶ UV Blaster - Area UV Disinfection System | - B SARVESH |
| ▶ Paper Disinfectant | - KEERTHIVASAN K |
| ▶ Notes Cleaner | - PRIYANSH JAIN |
| ▶ UV Cleaner Bag | - SARANG SOMAN |
| ▶ UV Based Sanitization Enclosure | - HARSH RAJPAL |
| ▶ UV Based Handheld Rechargeable Sanitization Device | - KRRISH BHALLA |
| ▶ Conclusion | - JOSH GEORGE JACOB |

COVID - 19 SCENARIO



TECHNICAL DETAILS OF UV BASED DISINFECTION DEVICES

- ▶ UltraViolet(UV) or UltraViolet-C (UV-C) light consists of a lower but energetic wavelength of light.
- ▶ It is particularly good at destroying genetic material in COVID-19 virus.



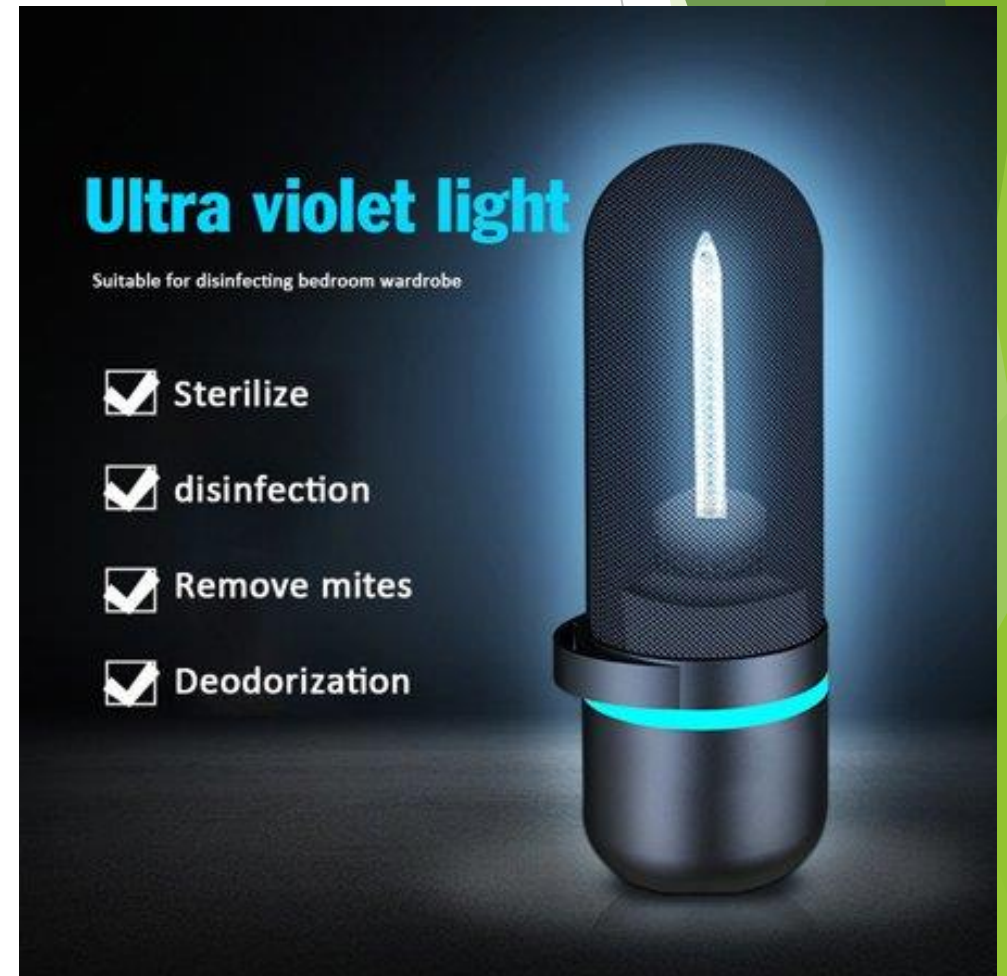
Shapes, sizes, and features of UV disinfection devices vary



A Brief comparison of UV Based Disinfectants and Chemical Disinfectants



VS



Health and Safety Concerns



- ▶ At wavelengths below 225 nanometers—the Far UV-C region—UV appears to be safe for skin exposure at doses below the exposure levels defined by the [International Committee on Non-ionizing Radiation Protection](#).
- ▶ More studies and research on Far UV-C bear out that exposure to human skin is not dangerous, and it is possible that validated Far UV-C light systems can be installed in public places that could support attempts at controlling virus transmission for SARS-CoV-2 and other potential airborne viral pathogens, today and into the future.

Benefits of UV Disinfection

1) UV light disinfection is the most effective form of disinfection

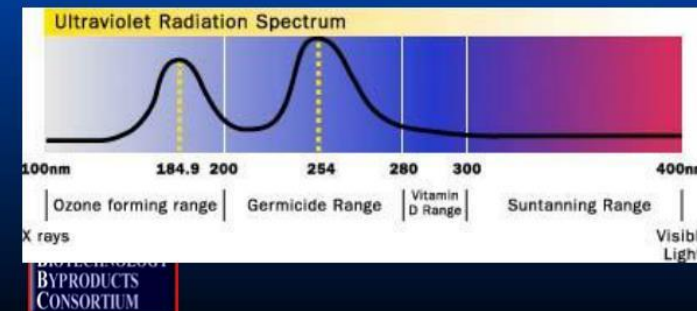
- ▶ Even the most rigorous cleaning using bleach, disinfectants, and hot water can miss harmful bacteria, viruses, and other microorganisms. UV disinfection uses ultraviolet technology to kill a wide array of microorganisms, including the coronavirus.

2) UV disinfection is the safest disinfection method

- ▶ UV light disinfection is safe as it does not use any chemical. Many people tend to think that exposure to UV light can cause sunburns and other related problems.

ULTRAVIOLET RADIATION

- Physical Process
- Damages Nucleic Acids in Organisms
- Stops Reproduction of Organisms by Breaking Apart the DNA Bonds
- Wavelengths Between 100-400 nm



3) It is affordable

- ▶ UV light disinfection is one of the most affordable sanitization methods.

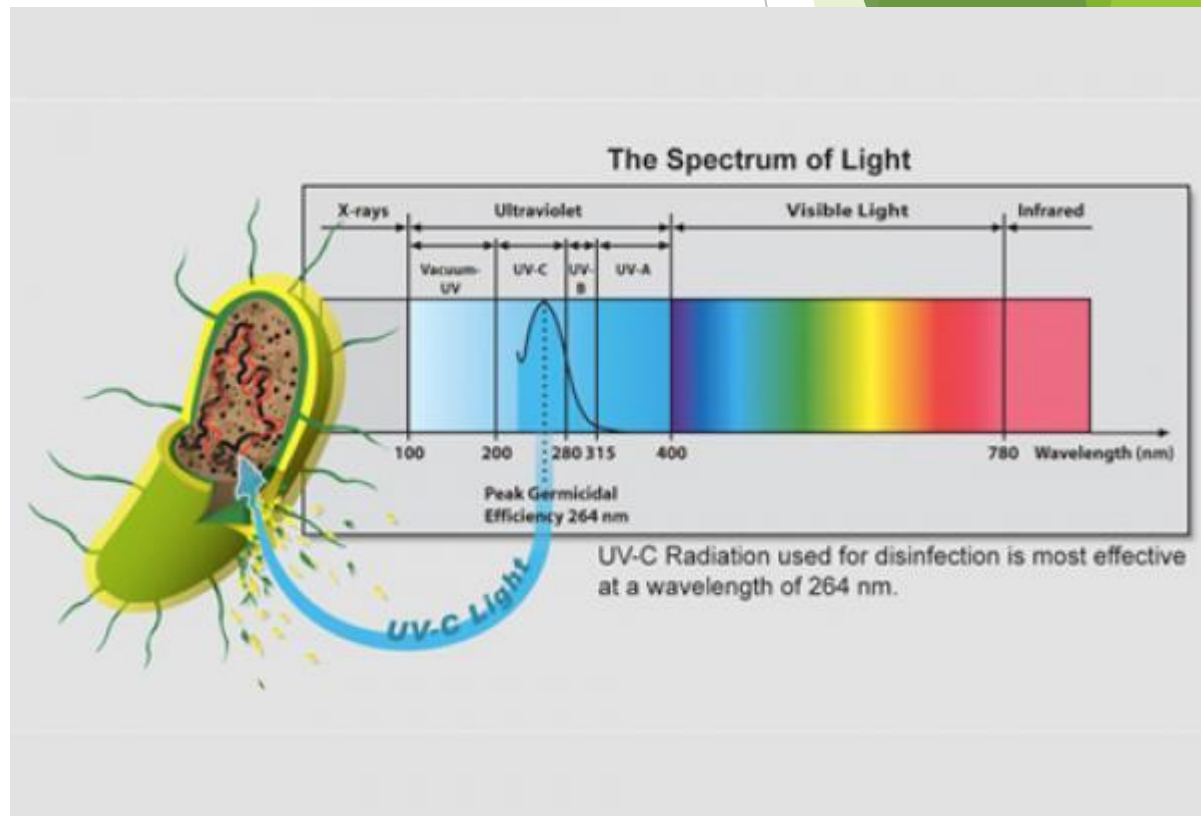
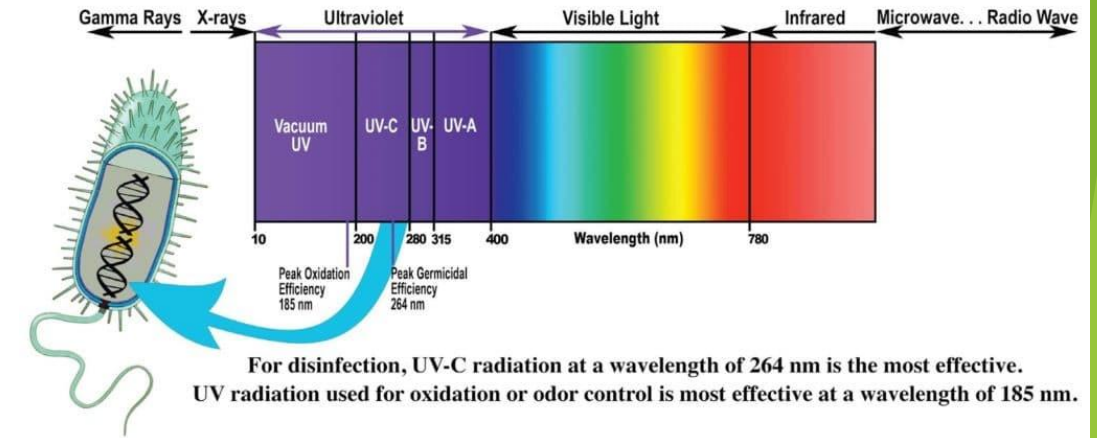
4) It is easy to use

- ▶ You don't need to be an expert to use this method and also don't have to worry about side effects.

5) Versatile

- ▶ Light-powered disinfection can be applied to a number of business environments and settings. Retail, hospitality, salons, schools, banking, offices, gyms and transportation industries can all adopt this technology - and the list goes on.

Light Spectrum (Electromagnetic Radiation)



Powerful UV Disinfection Devices

1) UV BLASTER - AREA UV DISINFECTION SYSTEM

Can be used for disinfection of public spaces, floor and homes.

2) PAPER DISINFECTOR

Can be used for disinfection of paper products.

3) NOTES CLEANER

Can be used for disinfection of Currency/Bank Notes.

4) UV CLEANER BAG

Can be used for disinfection of large items.

5) UVC BASED SANITIZATION ENCLOSURE

Can be used for disinfection of packets, bags, briefcases, purses.

6) UVC BASED HANDHELD RECHARGEABLE SANITIZATION DEVICE

Can be used for daily use and serve as an alternative for sanitizers.

UV BLASTER - AREA UV DISINFECTION SYSTEM

- ▶ A UV Blaster can be developed for disinfection of our surroundings spaces.
- ▶ The equipment may be used for rapid and chemical free disinfection of office spaces and buildings.
- ▶ As UV treatment is proven to reduce air and surface contamination up to 99.99% it can very well replace the current Sanitizer Sprays used for sanitization of public spaces and save a large amount of money.
- ▶ The UV based area sanitizer may be used by remote operation through laptop/mobile phone using wifi link.




PAPER DISINFECTOR


- ▶ Paper-based items like security passes, letters, currency notes etc. have been reported to be a major source of spread of viral diseases like COVID-19.
- ▶ The 'Paper Disinfector' can be designed to meet the imminent need to disinfect daily paper-based items entering an establishment.
- ▶ Paper / envelopes up to A4 size can be disinfected using the device Paper / envelopes up to A4 size can be disinfected using the device.

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News Letter

— TRUSTED NEWS SINCE 1737 —

Sussexes in last appearance as senior Royals  SEE PAGE 6

Farmer's friends praise 'tragic young gentleman'  SEE PAGE 6

PROVINCE STARTING TO FEEL MAJOR DISRUPTION

Coronavirus: Now it's getting serious

■ Belfast St Patrick's Day parade cancelled ■ Another local footballer positive ■ Schools closed for deep clean

Coronavirus concerns have begun to bite in Northern Ireland, closing two schools and causing Belfast's St Patrick's Day parade to be postponed, with a 13th person last night diagnosed with the condition.

Italy, the worst affected country after China, last night announced a total national lockdown - with people only being permitted to travel for work or family emergencies.

That announcement came only hours after Stormont Health Minister Robin Swann warned that between 50 and 80% of NI people could ultimately be infected.

"This is not going to get any easier any time soon," he said.

Other developments across NI yesterday were:

- NI's 13th case was last night confirmed as a player from Tandragee Rovers FC;
- Newtownhamilton High School and the associated primary school have been closed until Monday for a deep clean after a pupil caught the virus;
- St Gail's GAA club in west Belfast has also been closed for a deep clean after an adult member tested positive after returning from holiday;
- Northern Ireland's exam body, the CCEA, confirmed that it is keeping the situation under review in conjunction with other statutory agencies, declining to confirm reports that it was considering the possibility of postponing GCSEs and A-level exams;
- Belfast City Council last night voted to call off its St Patrick's Day parade and associated celebrations due to concerns.

And although the UK death toll yesterday rose to five, health experts expect only a 1% fatality rate.

TURN TO PAGE 4 →

ILLNESS

Eastwood, bookie and boxing manager, dies at 87

Boxing promoter and bookmaker Barney Eastwood has died at the age of 87.

Known to friends and family as 'BJ', Eastwood, from Holywood, Co Down, died yesterday at the Ulster Hospital after a period of illness.

Eastwood (pictured) made his name in the bookmaking business, but enjoyed world wide fame as a boxing promoter and manager in the 1960s.

His association with Barry McGuigan, who won the world featherweight title in 1985 on a famous night in London, helped illuminate a dark period during the Troubles.


Their friendship eventually ended in a high-profile court case, with Eastwood winning a long-running libel case in 1992.

Eastwood also managed four other world champions, including Dave "Boy" McAuley from Larne.


He eventually sold his bookmaking chain to Ladbrokes for £15 million.

He is survived by his wife Frances, six children, 23 grandchildren and 15 great-grandchildren.

SEE PAGE 3 →



A television screen in Stormont relays Health Minister Robin Swann's coronavirus update to the Assembly

FARMINGLIFE  THE LATEST FARMING NEWS AND STORIES

NOTES CLEANER

- ▶ UVC Radiations can be used to disinfect currency notes as well which is not possible by use of chemical disinfectants.
- ▶ An Automated UVC Currency Sanitizing Device called NOTES CLEANER can be developed.
- ▶ In this sanitizing technique one has to just place the loose currency notes at the input slot of the device.
- ▶ It picks the notes one by one and makes them pass through a series of UVC lamps for complete disinfection.
- ▶ The cabinet of the device is having contactless operation which is very important to contain the spread of virus.



UV Cleaner Bag

- ▶ When it comes to a more compact UV light sanitizer, an UV Cleaner Bag can be designed. It has a foldable design thus it is easier to carry it from one place to another without feeling much of its weight.
- ▶ Using LED UV band 260nm-280nm effectively achieves sterilization. It can destroy the DNA or RNA molecular structure in the cells of microbial organisms after 3 minutes of UV disinfection, achieving the effect of sterilization and disinfection



USB 5V DC input
Power supply mode:



power bank



computer

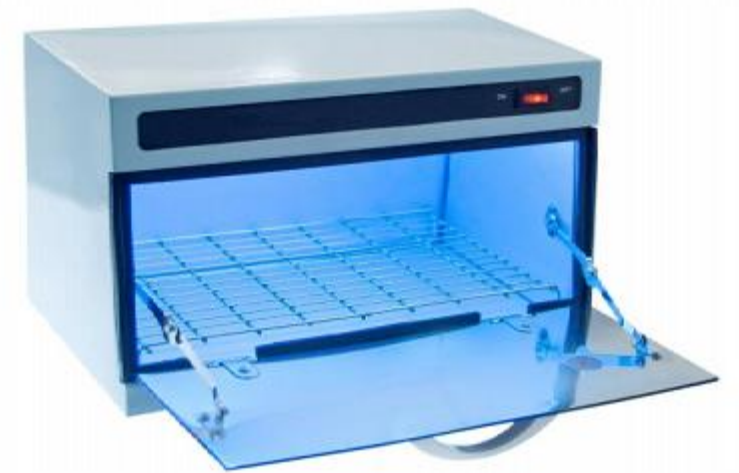


wall charger

note: power bank / computer / wall charger all not included

UVC BASED SANITIZATION ENCLOSURE

- ▶ UV-Disinfection unit provides a simple, quick, and safe solution to disinfect groceries, vegetables, car keys, wallets and various objects of daily use at home and in the workplace. It deactivates 99.9 % germs present on the surfaces with three in-built Ultraviolet UV-C light.
- ▶ It is an enclosure having rotating platform to provide uniform UV exposure and sanitization of packets, bags, briefcases, purses, medical accessories, etc.



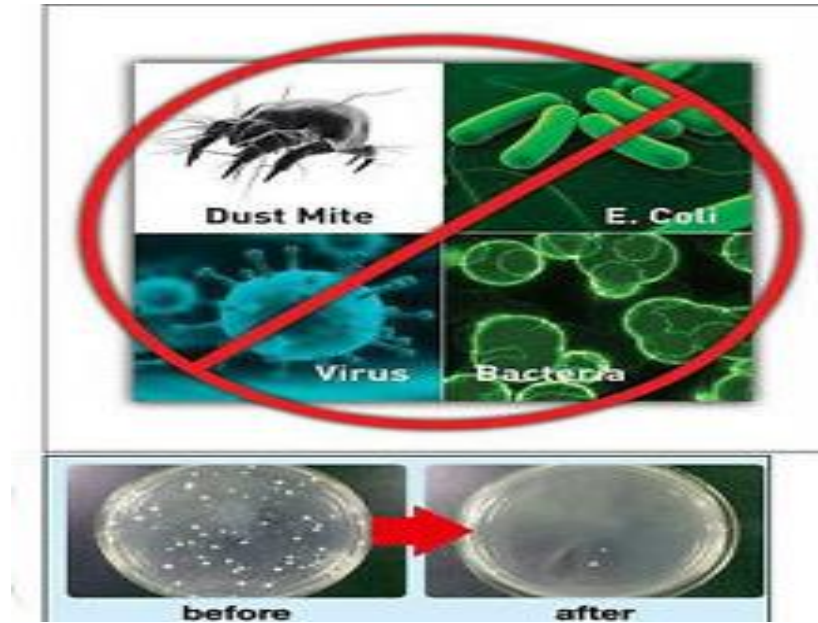
UVC BASED HANDHELD RECHARGEABLE SANITIZATION DEVICE

- ▶ The device provides UV Sterilization for computer laptop keyboard disinfection, toilet, bedding, crawling mat, crib, pet supplies disinfection, living room, bedroom, bathroom, kitchen, refrigerator, shoe cabinet, car, pet nest, etc.
- ▶ It can kill the vast majority of bacteria and other microorganisms in the air and in water in seconds, lose the ability to reproduce, thus protecting your health.
- ▶ UV-C light with 270 nm wavelength is useful for sanitization of any exposed surfaces and items of daily use.
- ▶ A hand held UV-C LED based, rechargeable sanitization device can be used anywhere and can be carried even in the briefcase.

270-280nm
20s rapid sterilization
USB interface
Easy to carry



CONCLUSION:



- ▶ We can conclude that UV Based disinfectants, being cheaper and more effective in killing microbes, can replace the traditional chemical disinfectants.
- ▶ This can lead to huge cost reduction.
- ▶ However people need to know how to use the UV Based Disinfection Devices and need not to have unnecessary fear of getting harmed by UV light.