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Technology Review



PLASMACLUSTER ION

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1. INTRODUCTION

There are multiple technologies in air-purifiers available in the market. There are the mechanical HEPA filters, electronic ionizers, ozone filters, UV filters and gas phase filtration purifiers. No single technology purifier will be effective in removing all the pollutants. One's choice would depend on which type of pollutant one wish to eliminate from the environment.

2. TECHNICAL FEATURES

It is claimed by the company that Plasmacluster Ion technology (PCI) generates a balanced shower of positive and negative ions by splitting the molecules of water in the air. The Plasmacluster Ion device does not produce any ozone, unlike ionizers used in air purifiers which produce Ozone as a by-product.

Ion generation process is applied at very fast speed and the H⁺ and the O⁻² ions are generated alternatively so as to "release the same number of molecules at the same time". Each ion becomes cluster-ionised by using the property of water molecule of condensing (gathering) around a particle. When released into the air, cluster ions surround harmful airborne particles which contain bacteria, viruses, and odours. Once cluster ions collide with harmful airborne particles such as bacteria, viruses and odour-causing molecules, they transform into chemically active OH (hydroxyl) groups. The OH groups extract H (hydrogen) molecules from the harmful particles and turn them into water (harmless substances H₂O) which breaks down harmful bacteria's cell wall by deactivating and deodorising the harmful particles.

The Sharp Plasmacluster Air Purifiers claims to combine the superior quality True HEPA and Granular Carbon passive air filtration system with patented Plasmacluster Ion active air purification technology.

3. OBJECTIVE

This review is to determine the safety and effectiveness of Sharp plasmacluster ion in eliminating the airborne bird-flu virus as claimed in the advertisement.

4. METHODOLOGY

Search engines such as PUBMED, EBSCO, Proquest, Medline and Google were used using the following keywords plasmacluster ion, air purifiers etc.

5. RESULT AND DISCUSSION

Safety and effectiveness

It is claimed by the vendor that plasmacluster ion technology was 99 per cent effective in killing-off the bird flu virus in a controlled environment, also against 26

other kinds of harmful airborne substances, including bacteria, mould fungi, viruses and allergens. It generates positive and negative ions to form cluster ions that reach every corner of the room to kill all these germs, even in stagnant air. True HEPA Filter traps over 99.97% of all allergens and dust down to 0.3 micron. Activated Carbon Filter removes over 4000 chemicals, odors and cigarette smoke. Apatite Anti microbial filter inhibits growth of bacteria and mold.

The Osaka-based company claimed that they began a five-month experiment, testing the technology on bird flu in collaboration with British research institute Retroscreen Virology Ltd, in January 200 before announcing the results. However, the study finding is inconclusive particularly with regards to virus load and the time response (Pham K, 2005).

6. CONCLUSION

There is no scientific evidence to support the use of Plasmacluster Ion technology in eliminating the airborne bird-flu virus as claimed in the advertisement.

The laboratory findings are based on in vitro studies in the laboratory which gives a direct controlled impact which shows that Plasmacluster ion technology is capable of eliminating the Avian Bird Flu virus. There are no established studies to prove that during the application of Plasmacluster ion technology in domestic split air conditioners totally diminish the pandemic virus. Hence, further research should be done before it is introduced into current practice and to the public.

7. REFERENCE

Kim, Pham. Evaluation of the SHARP Plasmacluster Ions Air Purification Technology Product Against the Avian Influenza Virus H5N1. Final Report. Retroscreen Virology. Study number PNT-PCS-001.