Home Based Portable Water Purifier: A Water Quality Enhancement System

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Bacteria and viruses are the main culprits responsible for causing stomach problems and related sicknesses. By making use of ozone, we made a prototype to test the hypothesis that water can be home treated without the additional buying of industrial chemicals and utilizing minimal amounts of energy. Ozone is made by ionizing cold dry air with very high voltage. Water from a local river (Marimba River), a tape water sample (municipal water) and also from a local well were sent for testing at university laboratories. Statistical data of energy consumption, amount of water used and time taken to notice any physical changes was noted down. Samples were taken back to laboratory for further analysis after treatment and the results were compared. The water from river was positive of E.coli , faecal coliform and had reasonably safe amounts of irons present in it , so a 5 litre sample was treated for 1 hour 10minutes and the results came back negative for bacteria. Tape water it was in correspondence to WHO guide lines and it tested safe for consumption but the problem with it was that its purity degraded with time forming insoluble black substances. So it was treated for 45 minutes in order to increase its sterility. The system drew a constant current of 2.34 Amps at 14 volts D.C throughout the process. Use of ozone to treat water proven itself to be an effective way to make safe drinking water and also enhance its health benefits in our body such as anti-inflammatory properties with the help of clever technological improvements the process can be made more effective and energy efficient with a variety of sources of power being used to power our prototype.

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