

**Magnetite -Zeolite Nanoparticles for extracting the *Dioxins (2,3,7,8- tetrachlorodibenzo para dioxin (TCDD)* in Polluted Waters: An In- Silico Study**

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Dioxins are environmental pollutants. They are belonging to the “dirty dozen” - a group of dangerous chemicals known as persistent organic pollutants in water. Highly potential experiments have shown them affecting number of organs and systems. With different types of nanomaterial emerging for applications in water purification and water treatment devices show the effectiveness against both chemical and biological contaminants. Utilization of specific nanoparticles either embedded in membrane or on other structural media that can effectively, rapidly render unusable water to potable is being explored at a variety of sectors. Zeolite is a crystalline hydrated aluminosilicate of alkaline and earth metals. It is an effective sorbents and ion –exchange media for metal ions which was evaluated as an ion exchange media for the removal of heavy metals from acids mine waste water. Magnetite Nanoparticles embedded Zeolite is prepared for better treatment of Dioxins contaminated water which can make potable one for regular use. Magnetite particles can be synthesized by co-precipitation of iron (II) and iron (III) aqueous salts solution in alkaline medium .Because of strong magnetic dipole, magnetite particles tend to aggregate. Polymeric compounds with special functional groups or surfactants can be added into solution in order to stabilize the solution (Wormuth, 2001). This technology is having lots of advantages over methods but still needs lots of research before the successful industrial application.

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