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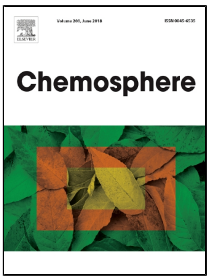

Magnetic water treatment – a review of the latest approaches

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Magnetic water treatment – a review of the latest approaches

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Abstract

Understanding of magnetic field (MF) effects observed during and after its action on water and aqueous solutions is still a controversial issue although the effects have been reported for at least half of century. The purpose of this paper was a brief review of the literature which deals with the magnetic force treatment effects. However, it is especially focused on the latest approaches, published mostly in the last decade which have developed our understanding of the mechanisms accompanying the field action. Generally, the changes in water structure via hydrogen bonding changes, as well as in intraclusters and between interclusters were taken into account, but the most remarkable progress was achieved in 2012 by Coey who applied the non-classical theory of nucleation mechanism of the formation of dynamically ordered liquid like oxyanion polymers (DOLLOP) to explain the magnetic field action. His criterion for the magnetic field effect to occur was experimentally verified. It was also proved that the gradient of the magnetic field is more important than the magnetic field strength itself. Some interesting approaches explaining an enhanced evaporation rate of water by MF are also discussed. More experimental results are needed for further verification of the DOLLOP theory to achieve a more profound understanding of the MF effects.

Key words: aqueous solutions**;** magnetic field effects; mechanisms