

**Iterative procedures to highlight the formation of molecular aggregates
of water molecules in pure perturbed water**

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Recent studies on the existence of an Exclusion Zone (EZ) at the interface solid/water of a synthetic hydrophilic membrane, Nafion, showed unexpected scenarios involving the properties of water. At beginning, the chemical and physical parameters do not show large variations, but the application of the iterative method has allowed us to get into an unknown field today but full of positive and surprising results. The chemical and physical parameters that exhibited variation up to three orders of magnitude are χ electrical conductivity (mS cm⁻¹), pH, density (g cm⁻³), heat of mixing with acids and/or bases, UV absorbance, fluorescence microscopy, Atomic Force microscopy, Scanning Electron and Transmission microscopy, and Thermogravimetric Analysis. We exhaustively demonstrated that these variations are not due to any chemical phenomenon dependent on the release of impurities. This suggests that even for the EDS homeopathic dilutions (Extremely Diluted Solutions) we are facing substantially with the same process responsible of the large variations of the physical chemical properties of water. Both the perturbed water for contact with hydrophilic polymers and homeopathic dilutions show great similarities in chemical and physical changes. Water shows a great ability to mutate over its molecular structure in a specific manner according to the chemical nature of the hydrophilic polymer with which has come into contact. All kinds of perturbed waters we studied show a common phenomenon: they exhibit two of the typical spectroscopic properties of the solutions containing biological macromolecules: Circular Dichroism and UV Fluorescence! This is a positive result, which could lead to a breakthrough in the study of EDS. Detractors of homeopathic pharmacology, not informed of the progress of research in this field, indicated such dilutions as “fresh water”. It is not so!