1. Nanosized solvent superstructures in ultramolecular aqueous dilutions: twenty years' research using water proton NMR relaxation.

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Source

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Abstract

BACKGROUND:
Proton Nuclear Magnetic Resonance (NMR) relaxation times T1, T2, T1/T2 are sensitive to motion and organization of water molecules. Especially, increase in T1/T2 reflects a higher degree of structuring. My purpose was to look at physical changes in water in ultrahigh aqueous dilutions.

METHODS:
Samples were prepared by iterative centesimal (c) dilution with vigorous agitation, ranging between 3c and 24c (Avogadro limit 12c). Solutes were silica-lactose, histamine, manganese-lactose. Solvents were water, NaCl 0.15 M or LiCl 0.15 M. Solvents underwent strictly similar, simultaneous dilution/agitation, for each level of dilution, as controls. NMR relaxation was studied within 0.02-20 MHz.

RESULTS:
No changes were observed in controls. Increasing T1 and T1/T2 were found in dilutions, which persisted beyond 9c (manganese-lactose), 10c (histamine) and 12c (silica-lactose). For silica-lactose in LiCl, continuous decrease in T2 with increase in T1/T2 within the 12c-24c range indicated growing structuring of water despite absence of the initial solute. All changes vanished after heating/cooling. These findings were interpreted in terms of nanosized (>4-nm) supramolecular structures involving water, nanobubbles and ions, if any. Additional study of low dilutions of silica-lactose revealed increased T2 and decreased T1/T2 compared to solvent, within the 10(-3)-10(-6) range, reflecting transient solvent destructuring. This could explain findings at high dilution.

CONCLUSION:
Proton NMR relaxation demonstrated modifications of the solvent throughout the low to ultramolecular range of dilution. The findings suggested the existence of superstructures that originate stereospecifically around the solute after an initial destructuring of the solvent, developing more upon dilution and persisting beyond 12c.

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2. The defining role of structure (including epitaxy) in the plausibility of homeopathy.

Rao ML, Roy R, Bell IR, Hoover R.

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Source

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Abstract

The key stumbling block to serious consideration of homeopathy is the presumed "implausibility" of biological activity for homeopathic medicines in which the source material is diluted past Avogadro's number of molecules. Such an argument relies heavily on the assumptions of elementary chemistry (and biochemistry), in which the material composition of a solution, (dilution factors and ligand-receptor interactions), is the essential consideration. In contrast, materials science focuses on the three-dimensional complex network structure of the condensed phase of water itself, rather than the original solute molecules. The nanoheterogenous structure of water can be determined by interactive phenomena such as epitaxy (the transmission of structural information from the surface of one material to another without the transfer of any matter), temperature-pressure processes during succussion, and formation of colloidal nanobubbles containing gaseous inclusions of oxygen, nitrogen, carbon dioxide, and possibly the remedy source material. Preliminary data obtained using Raman and Ultra-Violet-Visible (UV-VIS) spectroscopy illustrate the ability to distinguish two different homeopathic medicines (Nux vomica and Natrum muriaticum) from one another and to differentiate, within a given medicine, the 6c, 12c, and 30c potencies. Materials science concepts and experimental tools offer a new approach to contemporary science, for making significant advances in the basic science studies of homeopathic medicines.

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