

Aquaphotomics: Water spectral pattern as a biomarker for diagnosis

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Aquaphotomics¹ discovers and uses data base of specific water absorbance bands of the electromagnetic spectrum, which work as “hubs” for harvesting bio information on a system level. In our previous studies, it has been proved that water becomes a “mirror” on molecular level when illuminated with near infrared light. When light penetrates through the water it interacts with all the molecules of the bio system. As the water hydrogen bond network is highly influenced by the solutes, the obtained water absorbance spectral pattern mirrors all molecular vibrations. Therefore it communicates enormous information about the whole bio system.

Accurate bio diagnosis requires multitude of factors (symptoms) screened non-invasively and in real time. The present study will demonstrate how near infrared spectral data of various bio systems (water, DNA, cells, bacteria, plants and animals) facilitate this process. Furthermore, multivariate spectral analysis has been applied for information extraction. Specific water bands, “hubs”, were discovered and used for accurate bio diagnosis of different stages and conditions of each system.

These findings proved that water is a common denominator in each bio system. When analyzed and monitored non-invasively with near infrared light, it becomes powerful and highly efficient “hub network” for bio diagnosis.

Key words: bio system, near infrared spectroscopy, multivariate analysis, non-invasive diagnosis

Reference

1. Tsenkova, R. (2009) Introduction Aquaphotomics: dynamic spectroscopy of aqueous and biological systems describes peculiarities of water. *J. Near Infrared Spectrosc.* 17, 303-313.