

THE USE OF FTIR SPECTROSCOPY TO ASSESS POLYPHENOLS INDUCED CHANGES IN THE BIOCHEMICAL COMPOSITION OF FISH TISSUES

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In the last few years, Fourier transform infrared (FTIR) spectroscopy has significantly advanced in biological research. This has been due to recent progress in the use of chemometrics, such as partial least square (PLS) analysis or principal component analysis (PCA) for the extraction of reliable information even from highly complex FTIR spectroscopy spectra. In comparison to conventional chemical analyses, FTIR spectroscopy has striking advantages due to the high reliability, sensitivity, and the speed of measurement procedure.

Here we present some preliminary data on the use of Fourier transform infrared (FTIR) spectroscopy to analyze the trout digestive system exposed *in vitro* to hydroxytyrosol from olive pulp. Statistical analyses on FTIR spectra allowed the comparison of global effects of the hydroxytyrosol and evidenced some common or different features in the cell perturbations among digestive system tracts. Interestingly, marked metabolic changes induced by polyphenols were identified. Furthermore, many metabolic changes could be detected as early as after 15 minutes incubation with the polyphenol.