

# Investigation of water structures in tea made with different Yunosato Spa waters by NIRS and Aquaphotomics

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## Introduction

Yame tea is a very fine quality green tea grown in Yame region on Kyushu island, a region famous with its quality green tea. The purpose of this experiment is to see how the same kind of tea made with different Yunosato Spa waters changes its structure and function.

## Materials and methods

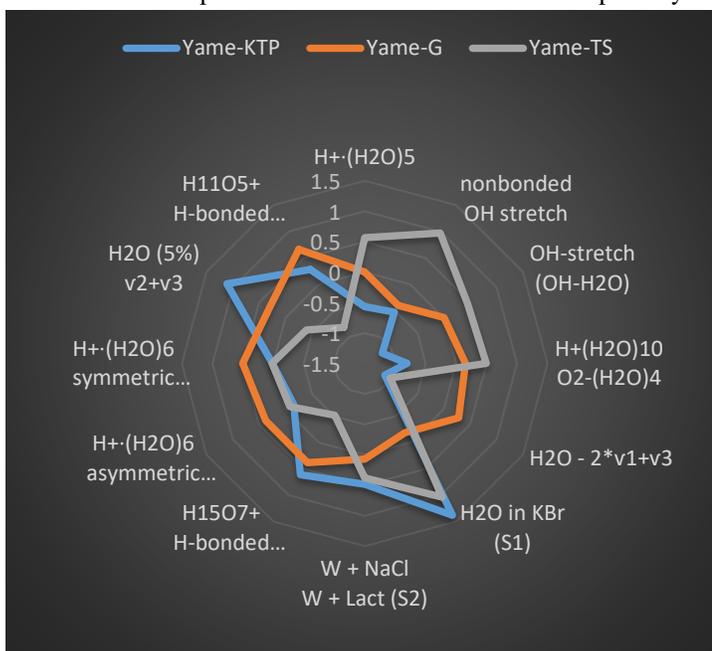
The experiment was done using Yame tea leaves. It was made with Tsukino Shizuku, Gold water and Konono tapped water. When making the tea, 4 grams of leaves were put in 156ml of water at 42°C and the liquid was stirred slowly for 1 minute in order to extract the tea essence faster. Right after that the samples were measured using NIRGUN device which is with a range of 590nm to 1090nm with a 2nm step. The waters were also measured separately for environmental control.

## Results and discussion

Tapped water tea has the most dimer clusters but lacks working water, compared to the other teas. Gold water tea shows balanced structuring and functions from all other teas. Tsukino Shizuku tea is strongly structured with many protonated clusters. The 2 teas made with Gold water and Tsukino Shizuku have different structures but have the thickest tea colors.

## Conclusion

Different waters in the same kind of tea changes its structures and functions. Yame tea with gold water has the most balanced functions and Tsukino Shizuku teas are the most stably structured. More tea leaf extraction was observed with Gold and Tsukino Shizuku waters.



## Reference

- "Characterisation of hydrogen bond perturbations in aqueous systems using aquaphotomics and multivariate curve resolution-alternating least squares"  
Gowen, A. A., Amigo, J. M., Tsenkova, R. (*Analytica chimica acta* 759C: 8-20, 2013)