3rd FOOD CHEMISTRY Conference
Shaping a Healthy and Sustainable Food Chain Through Knowledge
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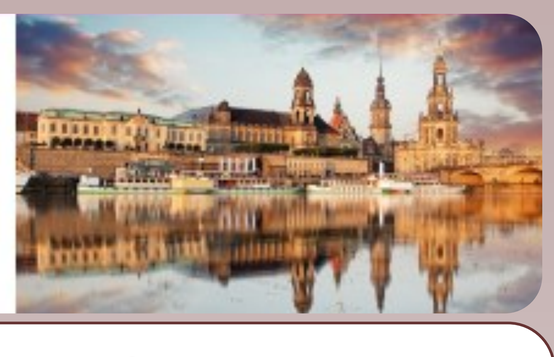

Development of a Functional Fermented Drink based on *Sobacha*: A Japanese Infusion of Roasted Buckwheat Seeds

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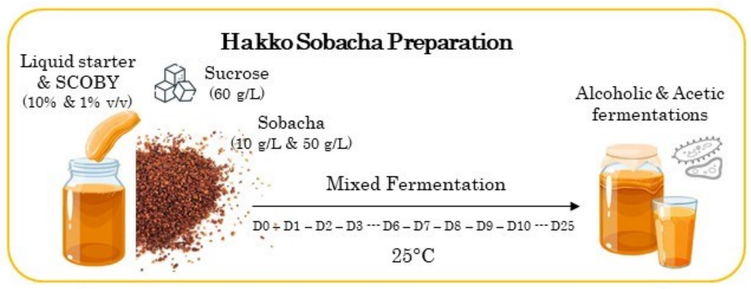
Introduction

Nowadays, consumer's demand for the development of functional foods on the market, *i.e.*, not only satisfying hunger and nutrient intake, but also preventing chronic diseases and improving physical and mental health, is constantly increasing.

At the dawn of a food transition encouraging the consumption of healthy and sustainable non-dairy probiotic products, the development of a fermented functional drink based on *Sobacha* is considered. Sobacha is an infusion of roasted buckwheat seeds (named kasha) widely consumed in Asian countries for its health benefits.

As fermentation improves the nutritional and the organoleptic status of grains, the mixed fermentation process involved in the development of Kombucha (fermented sweet tea) is conducted by inoculating a symbiotic culture of bacteria and yeasts into the transposable matrix (Sobacha instead of tea). Sobacha, a healthy pseudo-cereal matrix with promising aromas, could be fermented to potentially develop an innovative drink, named *Hakko Sobacha*. This neologism would reveal the fermented character of the infusion, *Hakko* meaning fermented in Japanese.

Materials & Methods

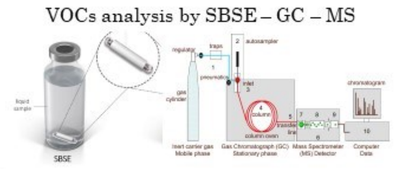


Physico-Chemical Parameters Study

pH — Carbohydrates, Ethanol, Acetic and Lactic acids levels by HPLC

Volatile Organic Compounds Analysis

VOCs analysis by SBSE – GC – MS

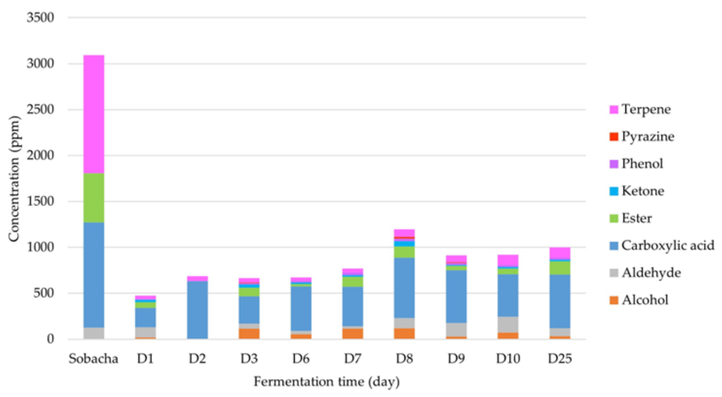


Aroma analysis

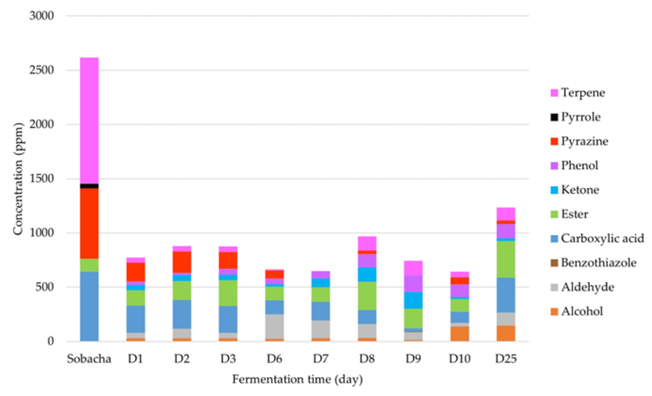
Sensory Analysis

Results & Discussions

1. Study of the development kinetics of the VOCs production



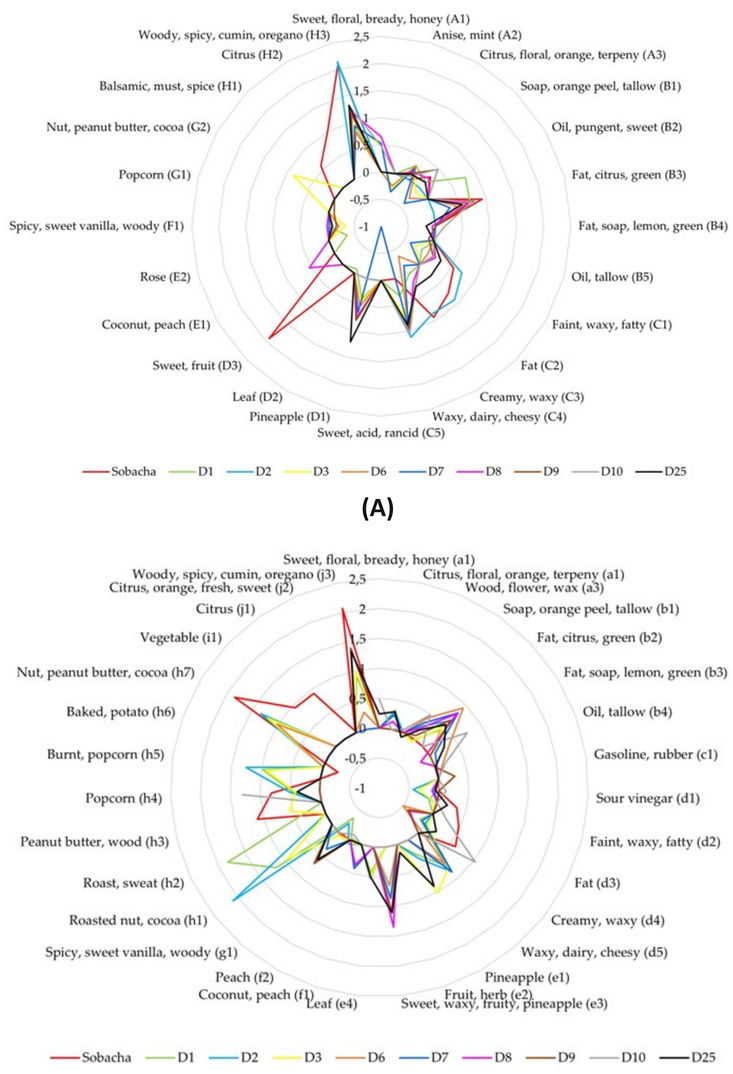
(A)



(B)

Evolution in average contents (ppm) of different classes of VOCs as a function of Hakko sobacha (kasha concentration of 10 g/L **(A)** and 50 g/L **(B)**) fermentation time (D, day) at 25 °C.

2. Aromatic characterization of Hakko Sobacha

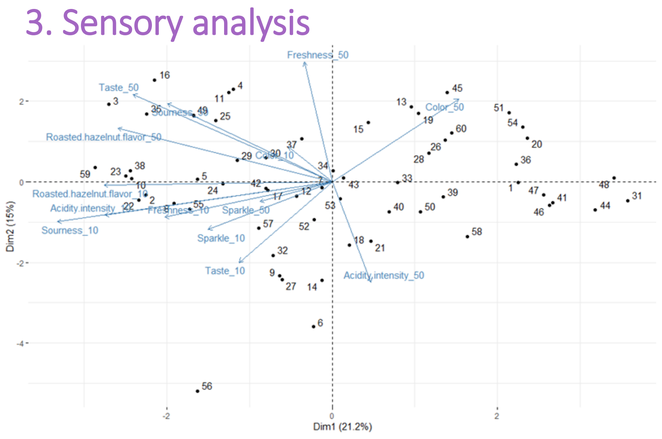


(A)

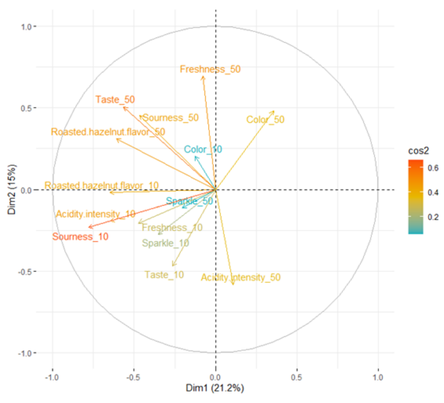
(B)

Estimated aromatic profiles expressed as the log of the OAV for VOCs (%area > 5%) as a function of Hakko Sobacha (**(A)** kasha concentration of 10 g/L and **(B)** of 50 g/L) fermentation time (day) at 25 °C (OAV = concentration/ perception threshold).

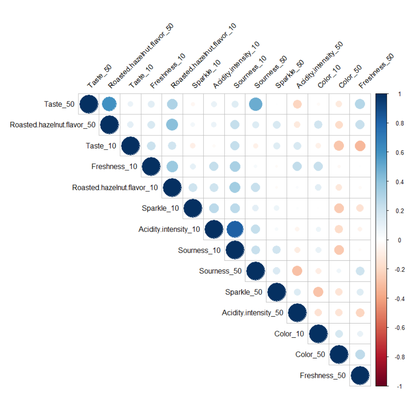
3. Sensory analysis



(A)



(B)



(C)

Principal component analysis plots of Hakko sobacha sensory evaluation variables and individuals **(A)**, variables correlation (cos^2 color scale) **(B)** and correlations between different sensory descriptors regarding the kasha concentration (_10: 10 g/L and _50: 50g/L) (a color gradient denotes the Spearman's correlation coefficients) **(C)**.

Conclusions

The fermentation process changes the VOC sobacha profile dynamically into a different mixture of compounds. The synthetized 2-phenylethyl acetate and ethyl caprylate compounds participate to the kombucha type fermentation signature.

Moreover, typical kasha aromas are correlated with the infusion concentration, bringing flavors such as peanut butter-wood-nut and cocoa. Along the fermentation process, sobacha sensory profile is modified through MO activity, resulting in the development of diverse aromatic molecules with different perception profiles.

Furthermore, the major judges surveyed were ready to incorporate Hakko sobacha into their daily routine as a more natural substitute for soft drinks.

Bibliography

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