

Accepted Manuscript

Insight into the evolution of flavor compounds during cooking of common beans utilizing a headspace untargeted fingerprinting approach

Claire M. Chigwedere, Wondyfraw W. Tadele, Junjie Yi, Scheling Wibowo, Biniam T. Kebede, Ann M. Van Loey, Tara Grauwet, Marc E. Hendrickx

PII: S0308-8146(18)31651-0
DOI: <https://doi.org/10.1016/j.foodchem.2018.09.080>
Reference: FOCH 23567

To appear in: *Food Chemistry*

Received Date: 15 June 2018
Revised Date: 12 September 2018
Accepted Date: 12 September 2018

Please cite this article as: Chigwedere, C.M., Tadele, W.W., Yi, J., Wibowo, S., Kebede, B.T., Van Loey, A.M., Grauwet, T., Hendrickx, M.E., Insight into the evolution of flavor compounds during cooking of common beans utilizing a headspace untargeted fingerprinting approach, *Food Chemistry* (2018), doi: <https://doi.org/10.1016/j.foodchem.2018.09.080>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Insight into the evolution of flavor compounds during cooking of common beans utilizing a headspace untargeted fingerprinting approach

Claire M. Chigwedere^{a*}, Wondyfray W. Tadele^a, Junjie Yi^a, Scheling Wibowo^a, Biniam T. Kebede^a, Ann M. Van Loey^a, Tara Grauwet^a and Marc E. Hendrickx^a.

*Corresponding author before publication: clairemaria.chigwedere@kuleuven.be

*Tel.: +32 16 32 15 72

Corresponding authors post-publication: marceg.hendrickx@kuleuven.be

clrchigwedere1@gmail.com

^aKU Leuven, Laboratory of Food Technology, Leuven Food Science and Nutrition Research Center (LFoRCe), Department of Microbial and Molecular Systems (M²S), Kasteelpark Arenberg 22 Box 2457, 3001, Heverlee, Belgium.

Abstract

Beans age during storage leading to prolonged cooking times. Chemical reactions that occur during cooking lead to volatile production and flavor generation. Whereas few studies profiled the volatile fingerprint of either non-cooked beans or beans cooked for a specific time, this study explored the evolution of volatiles through headspace fingerprinting of beans cooked at 95 °C to different extents. The influence of aging of beans on this evolution was investigated. Cooking time clearly influenced the evolution of volatiles for both fresh (non-aged) and aged beans. Aged beans exhibited more discriminant compounds than fresh beans regardless of texture considerations due to differences in pre-history of the beans. Strecker aldehydes, sulphur compounds and furan compounds were identified as marker compounds and were linked to mainly lipid oxidation and Maillard reactions. In conclusion, both aging prior to cooking and the cooking process itself largely influence the evolution of volatile compounds during cooking.

Keywords

Beans; Aging; Cooking; Volatile compounds; Marker compounds; Maillard reactions

Download English Version:

<https://daneshyari.com/en/article/10154424>

Download Persian Version:

<https://daneshyari.com/article/10154424>

[Daneshyari.com](https://daneshyari.com)