Accepted Manuscript

A sensitive HPLC-MS/MS screening method for the simultaneous detection of barley, maize, oats, rice, rye and wheat proteins in meat products

Wolfgang Jira, Siegfried Münch

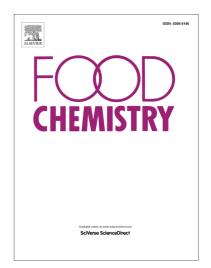
PII: S0308-8146(18)31609-1

DOI: https://doi.org/10.1016/j.foodchem.2018.09.041

Reference: FOCH 23528

To appear in: Food Chemistry

Received Date: 30 January 2018
Revised Date: 4 September 2018
Accepted Date: 5 September 2018



Please cite this article as: Jira, W., Münch, S., A sensitive HPLC-MS/MS screening method for the simultaneous detection of barley, maize, oats, rice, rye and wheat proteins in meat products, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.09.041

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.

ACCEPTED MANUSCRIPT

A sensitive HPLC-MS/MS screening method for the simultaneous detection of barley,

maize, oats, rice, rye and wheat proteins in meat products

Wolfgang Jira*, Siegfried Münch

Max Rubner-Institut (MRI), Federal Research Institute of Nutrition and Food, Department of

Safety and Quality of Meat, 95326 Kulmbach, Germany

*Corresponding author

Abstract

The use of grain proteins in various types of meat products is common practice. A reliable

detection of these food ingredients is required to control specifications and regarding food

fraud and allergenic potential. Consequently, a sensitive HPLC-MS/MS method for the

simultaneous detection of barley, maize, oats, rice, rye and wheat proteins in meat products

was developed. After protein extraction and tryptic digestion, three to four selected marker

peptides for each grain species were measured by HPLC-MS/MS. Emulsion-type sausages

with grain-based protein concentrations in the range of 5–1000 mg/kg and blank values were

produced. The limits of detection of the method were < 5 or < 10 mg grain protein/kg meat

product for each grain species and no false-positive or -negative results were obtained. The

detectability of the marker peptides only slightly decreased after storage and grilling of

sausages, whereas the influence of the canning process was noticeably higher.

Keywords

Gluten; maize; rice; tryptic marker peptides; HPLC-MS/MS; meat adulteration

1. Introduction

The addition of foreign proteins to meat products (especially emulsion-type sausages) is a

very common practice. In addition to soybean and milk proteins, wheat gluten is most

1

Download English Version:

https://daneshyari.com/en/article/10154423

Download Persian Version:

https://daneshyari.com/article/10154423

<u>Daneshyari.com</u>