

ISEAC-40

INTERNATIONAL CONFERENCE ON ENVIRONMENTAL & FOOD MONITORING



BOOK OF ABSTRACTS

Santiago de Compostela (Spain)

19-22 June 2018



INSTITUTO DE INVESTIGACIÓN
E ANÁLISES ALIMENTARIAS



**Universidad
Zaragoza**



XUNTA DE GALICIA
CONSELLERÍA DE CULTURA, EDUCACIÓN
E ORDENACIÓN UNIVERSITARIA
Secretaría Xeral de Universidades



International
Association of
Environmental
Analytical
Chemistry

Title

Book of abstracts of the ISEAC-40 International Conference on Environmental & Food Monitoring

Editors

Jose Benito Quintana, Cristina Nerin, Rosario Rodil

ISBN. 978-84-09-03799-5



ISEAC-40
INTERNATIONAL CONFERENCE ON
ENVIRONMENTAL & FOOD MONITORING

Santiago de Compostela (Spain)

19-22 June 2018

<http://www.iseac40.es/>

CHAIR & COCHAIR

José Benito Quintana, Universidade de Santiago de Compostela

Cristina Nerín, Universidad de Zaragoza

Organized by

Institute for Food Analysis and Research (IIAA), Universidade de
Santiago de Compostela (USC)

Universidad de Zaragoza (UNIZAR)

International Association of Environmental Analytical Chemistry
(IAEAC)

TABLE OF CONTENTS

WELCOME	1
ORGANIZERS AND COMMITTEES	3
SPONSORS AND COLLABORATING INSTITUTIONS.....	5
GENERAL INFORMATION.....	7
PROGRAM OVERVIEW.....	12
LECTURE PROGRAM	16
TUESDAY 19 JUNE.....	16
WEDNESDAY 20 JUNE.....	19
THURSDAY 21 JUNE.....	23
FRIDAY 22 JUNE.....	27
KEYNOTE SPEAKERS.....	29
ORAL PRESENTATIONS	74
POSTER PRESENTATIONS	175
TUESDAY 19 JUNE.....	175
WEDNESDAY 20 JUNE.....	261
THURSDAY 21 JUNE.....	347
LUNCH SEMINARS	434
AWARDS	435
SOCIAL PROGRAM	436
SPECIAL ISSUE OF IJEAC.....	437
PRESENTING AUTHOR INDEX.....	438

WELCOME

By the President of the IAEAC

Dear Participants of ISEAC-40, the Environmental and Food Monitoring Conference,

As president of the International Association of Environmental Analytical Chemistry (IAEAC), the organization being responsible for the conference series of International Symposia of Environmental Analytical Chemistry (ISEAC) since 1971, it is my privilege to welcome you at ISEAC-40 in Santiago de Compostela. The ISEAC series is the “flagship” of the conference series of IAEAC and is held biannually in different countries around the world. Organizers are in the rule members of IAEAC who do research in environmental analytical sciences in the broadest way. Indeed, in the founding years environmental work focused on the traditional compartments air, water and soil of the environment, but in the last decades health-related sciences and food problematics became included as well. Since the ISEAC in Lausanne in 2014 this was taken into account also in the name of the ISEAC conferences. The ISEAC conferences bring together scientists, manufacturers of analytical instrumentation and users of the methods for problem-oriented work in the fields mentioned, and last but not least doctoral and postdoctoral students entering the field. In lecture and poster sessions, as well as in the instruments exhibition, information on analytical methods and instruments as well as applications of the methods in different fields of the environment and food are presented and discussion also on trends in the field is very welcome. The organizer of ISEAC 40, Dr. Quintana and his cooperators are heartily thanked for taking up the immense amount of work involved with organizing an international meeting at the frontier developments in the field here in the historic city of Santiago de Compostela, where you are hoped to find apart from the scientific program some time during this week to enjoy the venue. During this meeting the IAEAC also holds its biannual General Assembly for its members. You are also invited to join the IAEAC as a member enabling us to strengthen efforts for research and its application in environmental and food sciences. I wish you a scientifically interesting meeting with much interaction with your colleagues and a very agreeable time here in Santiago de Compostela.

Prof. Dr. José A.C. Broekaert
President of IAEAC

WELCOME

By the Chairs of the ISEAC-40

We are very pleased to welcome you to the 40th International Conference on Environmental and Food Monitoring (ISEAC-40), to Santiago de Compostela and the Region of Galicia.

As you know, the ISEAC series has been one of the most recognized events in the environmental analytical field, which now incorporates food analysis, as many challenges need to be addressed together by analytical scientists. The 40th Jubilee of ISEAC is organized by the Universities of Santiago de Compostela and Zaragoza together with the International Association of Environmental Analytical Chemistry (IAEAC), as the society that has been promoting this event for already 47 years. In this edition, ISEAC-40 is also supported by 4 Spanish analytical societies, which provided grants for attendance among their younger affiliates. These are the Spanish Society of Chromatography and Related Techniques (SECYTA), the Spanish Society of Mass Spectrometry (SEEM), the Spanish Society of Analytical Chemistry (SEQA) and the Spanish Society of Applied Spectroscopy (SEA).

Our main goal, as organizers of the ISEAC-40, was to recover the essence of ISEAC, so that the program would be made for, and more importantly, by you: the participants. Of course, there are invited keynotes, but we have planned for enough time to hold plenty of regular oral presentations, visiting the posters, the exhibition and networking with your peers, so that you can discuss, find ideas and bring up new collaborations. With the same spirit, the conference fee also includes the attendance to the welcome cocktail after the first day and the dinner on the third one.

The program comprises a total of 16 keynotes, 100 platform and 256 poster presentations, of which, 46 platform and 96 posters correspond to young presenters, which may opt to the 3 poster and 2 oral presentation awards offered by the ISEAC-40 organization and diverse sponsors. In parallel, the ISEAC-40 will hold an exhibition from 16 different enterprises on the latest developments in the fields.

We want to acknowledge herein the huge effort made by the Organizing Committee members, the Scientific Committee for their input on topics, speakers and assessment of abstracts, all our many sponsors and collaborators, and of course, you, the participants for your engagement with this edition. Together, we will make ISEAC-40 a great event!

We hope that you will profit and enjoy the conference, the historic city of Santiago de Compostela, whose historic center and pilgrimage path have been recognized as World Heritage by the UNESCO, and that you keep some time to visit Galicia and discover the green and blue Spain.

Looking forward to meeting you in Santiago de Compostela and wish you a pleasant stay!

Dr. José Benito Quintana

Chair

Prof. Dr. Cristina Nerín

Cochair

ORGANIZERS AND COMMITTEES

CONFERENCE CHAIR

José Benito Quintana Universidade de Santiago de Compostela

CONFERENCE COCHAIR

Cristina Nerín Universidad de Zaragoza

LOCAL COMMITTEE (Universidade de Santiago de Compostela)

Carmela Casais

Inma Carpinteiro

Iria González-Mariño

Rosa Montes

María Ramil

Rosario Rodil

Isaac Rodríguez

Elisa Rubí

SCIENTIFIC COMMITTEE

Joan Albaigés – CID-CSIC, Barcelona (Spain)

Luiz Felipe de Alencastro – EPFL, Lausanne (Switzerland)

José Broekaert – University of Hamburg (Germany)

Sara Castiglioni – IRCCS, Institute for Pharmacological Research "Mario Negri", Milan (Italy)

Rafael Cela – Universidade de Santiago de Compostela (Spain)

Adrian Covaci – University of Antwerp (Belgium)

Chris Elliott – Queens University of Belfast (UK)

Néstor Etxebarria – University of the Basque Country, Bilbao (Spain)

Imma Ferrer – University of Colorado at Boulder (USA)

Stuart Harrad – University of Birmingham (UK)

Félix Hernández– University Jaume I, Castellón (Spain)

Juliane Hollender – EAWAG, Zurich (Switzerland)

Ron Hoogenboom – RIKILT Wageningen University & Research (The Netherlands)

Miren López de Alda – IDAEA-CSIC, Barcelona (Spain)

Purificación López-Mahía – University of A Coruña (Spain)

Elena Martínez-Carballo – University of Vigo, Ourense (Spain)

Maria Rosaria Milana – Istituto Superiore di Sanità, Rome (Italy)

Manuel Miró – University of the Balearic Islands, Mallorca (Spain)

Roberto Pilloton – CNR-IC, Institute of Crystallography, Rome (Italy)

Thorsten Reemtsma – UFZ, Helmholtz Center for Environmental Research, Leipzig (Germany)

Martin Rose – University of Manchester (UK)

Kevin V. Thomas – University of Queensland, Brisbane (Australia) & NIVA, Norwegian Institute for Water Research, Oslo (Norway)

Renato Zanella – Santa María Federal University (Brazil)

TU-69

**ANALYSIS OF FATTY ACID COMPOSITION AND TOTAL OIL IN DIFFERENT FLAXSEED
(*LINUM USITATISSIMUM*) GENOTYPES**

N.Grahovac, A. Marjanović- Jeromela, Z. Sakač, N. Lečić, A. Kondić-Špika, V. Miklič

Institute of Field and Vegetable Crops, Maksima Gorkog 30, 21000 Novi Sad, Serbia

nada.grahovac@ifvcns.ns.ac.rs

Linum usitatissimum (Linn.), commonly known as flaxseed or linseed, belongs to the family Linaceae. Flaxseed has high nutritive value and multiple uses. It is considered a functional food that has nutrients with specific properties, such as essential omega-3 fatty acids (α -linolenic acid, 18:3n3), lignan or dietary fibers. Additionally, α -linolenic acid (ALA) is the precursor of the polyunsaturated fatty acids (PUFA) omega-3 family which forms eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in the body. The converting of ALA to EPA and DHA in the body is restricted, but can be physiologically and clinically important. Flaxseed is regarded as the best plant source of the essential omega-3 fatty acid. Studies suggest that the omega-3 fatty acid may have anticancer properties.

Hence, present study is carried out to compare content of essential fatty acids in six different flaxseed genotypes. The oily flax type was exclusively included in this assay. In 2017, field experiment was conducted on the location of Rimski Šančevi (Vojvodina Province, Serbia). Oil content was obtained by extracting samples in a soxhlet apparatus using petroleum ether as the extractant. Trimethylsilyl esters of fatty acids were determined from oil of flaxseed by using capillary gas chromatography with a flame ionisation detector. Total oil contents at flaxseed varied among 37.49-45.87% for tested genotypes. Gas chromatography analyses showed major fatty acids to be α -linolenic acid, linoleic and oleic acids. The content of 18:3n3, 18:2n6 and oleic acids were within the ranges of 52.61-58.65%, 13.29-21.71% and 16.41-20.52% of the total fatty acids, respectively. The study confirmed that the essential fatty acids (18:2n6 and 18:3n3) are predominant acids in investigated genotypes of flaxseed. The presence of essential fatty acids in tested flaxseed genotypes makes them nutritionally valuable. The results have shown that there were differences in content of essential fatty acids among the genotypes, indicating the great genetic potential for further improvement.

Acknowledgement: This study was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (project number TR31025).



**40TH INTERNATIONAL CONFERENCE ON
ENVIRONMENTAL & FOOD MONITORING
SANTIAGO DE COMPOSTELA (SPAIN)**

19-22 JUNE 2018

<https://www.iseac40.es/>

