



Università  
degli Studi di  
Messina

DIPARTIMENTO DI SCIENZE BIOMEDICHE,  
ODONTOIATRICHE E DELLE IMMAGINI  
MORFOLOGICHE E FUNZIONALI



Società Chimica Italiana  
Gruppo Interdivisionale  
Chimica degli Alimenti



# CHIMALI 2023

MARSALA



## XIII CONGRESSO NAZIONALE DI CHIMICA DEGLI ALIMENTI

### LIBRO DEGLI ABSTRACTS

[www.chimali2023.it](http://www.chimali2023.it)

29 – 31 maggio 2023

Hotel Resort Villa Favorita,  
Marsala (TP)

# **XIII CONGRESSO NAZIONALE DI CHIMICA DEGLI ALIMENTI**

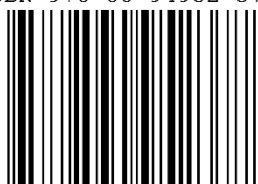
29 – 31 maggio 2023  
Hotel Resort Villa Favorita, Marsala (TP)

[www.chimali2023.it](http://www.chimali2023.it)

ISBN 978-88-94952-37-7

© Società Chimica Italiana

ISBN 978-88-94952-37-7



9 788894 952377

# **XIII CONGRESSO NAZIONALE DI CHIMICA DEGLI ALIMENTI**

29 – 31 maggio 2023  
Hotel Resort Villa Favorita, Marsala (TP)

**PRESIDENTE**  
Giuseppa Di Bella

**PRESIDENTE ONORARIO**  
Giacomo Dugo

## **COMITATO D'ONORE**

Anna Arnoldi  
Vincenzo Brandolini  
Lanfranco Conte  
Antonella Cotroneo  
Arnaldo Dossena

Giovanni Dugo  
Rosangela Marchelli  
Aldo Martelli  
Patrizia Restani  
Maria Stella Simonetti

## **COMITATO SCIENTIFICO**

Giuseppa Di Bella  
Alberto Angioni  
Marco Arlorio  
Pierluigi Caboni  
Giovanni Caprioli  
Chiara E. Cordero  
Nicola Cicero  
Maria Daglia  
Paola Dugo  
Gianni Galaverna

Vincenzo Lo Turco  
Luisa Mannina  
Nadia Mulinacci  
Mariateresa Russo  
Luca Rastrelli  
Alberto Ritieni  
Gianni Sagratini  
Antonello Santini  
Michele Suman  
Gian Carlo Tenore

## **CO-ORGANIZZATORI**

Vincenzo Ferrantelli

Salvatore Seminara

## **COMITATO ORGANIZZATORE**

Ambrogina Albergamo

Katia Arena

Ivana Lidia Bonaccorsi

Francesco Cacciola

Daniele Giuffrida

Domenica Mangraviti

Angela Giorgia Potorti

Francesca Rigano

Marina Russo

Marcello Saitta

Peter Quinto Tranchida

## **SEGRETERIA ORGANIZZATIVA**

Mariella Barbagallo

Giovanni Bartolomeo

Laura De Maria

Rita De Pasquale

Federica Litrenta

Laura Messina

Vincenzo Nava

Rossana Rando

Benedetta Sgrò

Miriam Porretti

Rossella Vadalà

IN COLLABORAZIONE CON:



CON IL CONTRIBUTO DI:





*antioxidants*

an Open Access Journal by MDPI



DI NOTO BRAND

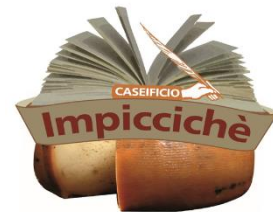
Pietro Di Noto

Ricerca, Innovazione & Brevetti





*Mannirà  
Bio*





CON IL PATROCINIO DI:



Università  
degli Studi di  
Messina

DIPARTIMENTO DI SCIENZE BIOMEDICHE,  
ODONTOIATRICHE E DELLE IMMAGINI  
MORFOLOGICHE E FUNZIONALI



ORDINE  
DEI DOTTORI AGRONOMI  
E DEI DOTTORI FORESTALI  
DELLA PROVINCIA DI MESSINA



*Ministero della Giustizia*



consorzio  
universitario  
mediterraneo  
orientale



SICINDUSTRIA



ORDINE DEI  
CHIMICI E FISICI  
DELLA PROVINCIA  
DI MESSINA



ORDINE INTERP.LE  
DEI CHIMICI E FISICI  
DELLA SICILIA



## Characterization of color, phenolic profile, and antioxidant activity of Italian pigmented rice varieties after different technological treatments

Corinne Bani<sup>1</sup>, Francesca Colombo<sup>1</sup>, Carola Cappa<sup>2</sup>, Francesca Mercogliano<sup>1</sup>,  
Patrizia Restani<sup>1,3</sup>, Chiara Di Lorenzo<sup>1</sup>

<sup>1</sup>Department of Pharmacological and Biomolecular Sciences, Università degli Studi di Milano, Milano, Italy

<sup>2</sup>Department of Food, Environmental and Nutritional Sciences, Università degli Studi di Milano, Italy

<sup>3</sup>Coordinating Research Center “Innovation for Well-Being and Environment” (CRC),  
Università degli Studi di Milano, Italy

[corinne.bani@unimi.it](mailto:corinne.bani@unimi.it)

Pigmented varieties are rich in different bioactive compounds, including anthocyanins, proanthocyanidins, carotenoids, and phenolic acid, with known antioxidant and anti-inflammatory activity [1,2,3]. Therefore, their consumption could exert beneficial effects on the health of the general population and in particular on that of people suffering from some chronic diseases such as celiac disease. Different pigmented rice varieties are present on Italian market; they are commercialized as brown rice or as a product after a technological treatment (e.g., parboiled, milling). Pigmented rice is commonly consumed as brown rice, but technological treatments could bring some advantages for both producers and consumers (higher milling yield, shorter cooking time, and longer shelf-life) [4] and have positive effects on rice nutritional values in terms of starch availability, glycemic index and/or vitamins and mineral contents. The objective of this study was the characterization of the samples in term of phenolic content and antioxidant capacity tested *in vitro*. In parallel the impact of two technological treatments (e.g., milling and parboiling) on their phytochemical composition was evaluated. Four pigmented (purple, black, orange, red) and one non-pigmented samples of Italian rice varieties, as such brown or processed with different technological treatments (parboiled and milled) were included in the study. Different spectrophotometric and chromatographic *in vitro* methods were applied: 1) Folin–Ciocalteu assay, 2) DPPH assay, 3) pH differential method, 4) High-Performance Thin Layer Chromatography (HPTLC), 5) HPLC-DAD method. According to our results, pigmented varieties represent a source of soluble polyphenols and anthocyanins with high antioxidant activity when compared to the non-pigmented ones. However, both technological processes affected the concentration of phenolic compounds and the relative antioxidant property. Milling reduced specifically the content of phenolic compounds and the antioxidant activity, while parboiling affected mainly the presence of anthocyanins.

This work was supported by Fondazione Celiachia Onlus (FC) Grant n°004\_FC\_2019.

### References

- [1] P.A. Rodríguez-Salinas, F. Zavala-García, V. Urías-Orona, D. Muy-Rangel, J.B. Heredia, G. Niño-Medina, *Arabian Journal for Science and Engineering*, **2020**, *45*, 95.
- [2] C. Di Lorenzo, F. Colombo, S. Biella, C. Stockley, P. Restani, *Nutrients*, **2021**, *13*, 273.
- [3] S. Piazza, F. Colombo, C. Bani, M. Fumagalli, O. Vincentini, E. Sangiovanni, G. Martinelli, S. Biella, M. Silano, P. Restani, M. Dell’Agli, C. Di Lorenzo, *Foods*, **2023**, *12*, 63.
- [4] B. Min, A. McClung, M.H. Chen, *Food Chemistry*, **2014**, *159*, 106.