

**İstanbul**, November 26-27 2024

**III. INTERNATIONAL**

**MINERAL WATER CONGRESS**

**Proceedings and Books of Abstracts**

  
**BİR ÖMÜR  
MADEN SUYU**



**III. INTERNATIONAL  
MINERAL WATER CONGRESS**

**III. ULUSLARARASI  
MADEN SUYU KONGRESİ**

**Istanbul, November 26-27 2024**

Istanbul, 26-27 Kasım 2024

**PROCEEDINGS BOOK**

**BİLDİRİLER KİTABI**

**EDITORS / EDITÖRLER**

Assoc. Prof. Muhammet Emin Çam

Tuğba Şimşek

Dr. Gamze Yıldırım

### III. INTERNATIONAL MINERAL WATER CONGRESS

#### III. ULUSLARARASI MADEN SUYU KONGRESİ

##### Academic Proceeding Series: 1

##### E D I T O R S

Assoc. Prof. Muhammet Emin Çam

Tuğba Şimşek

Dr. Gamze Yıldırım

##### O R G A N I Z I N G C O M M I T T E E

Ali İhsan Özdemir, Quality Assurance Manager, Kızılay Beverage

Belkıs Burçin Akgöz, Marketing Manager, Kızılay Beverage

Cihad Muslu, Assistant Brand Manager, Kızılay Beverage

Çağlar Ercan, Quality Assurance Manager, Uludağ Beverage

Ebru Solmaz, R&D Analyst, Kızılay Beverage

Ercan Yiğit, MASUDER Secretary General, MASUDER

Gamze Yıldırım, R&D Specialist, Kızılay Beverage

İlsu Aşıkgül Yıldız, Assistant Brand Manager, Kızılay Beverage

İrem Uysal, R&D Assistant Specialist, Kızılay Beverage

Murat İntepe, R&D Manager, Kızılay Beverage

Nazlı İpekli Bilgehan, Senior Brand Manager, Uludağ Beverage

Özgür Dede, Operation Manager, Uludağ Beverage

Rasime Yılmaz Ozman, Marketing Director, Kızılay Beverage

Sıla Aydılek, Brand Manager, Kızılay Beverage

Şule Keyik, Quality And R&D Director, Uludağ Beverage

Tuğba Şimşek, Quality And R&D Director, Kızılay Beverage

Ümit Karaaslan, Quality Assurance Unit Manager, Kızılay Beverage

##### C O V E R A N D G R A P H I C D E S I G N

Nevezat Onaran

**ISBN:** 978-625-94264-6-4

©Kızılay Culture and Art, 2025

Küçükbakkalköy Mahallesi, Rüstempaşa Sokak INMAK Plaza NO.2A Ataşehir/ İstanbul

All rights of this work are reserved by Kızılay Culture and Arts Publications. The views expressed in the content of the work belong to the authors. The electronic version of the work can be freely downloaded without any additional permission.

# Scientific Committee

Prof. Dr. Gamze Akbulut, Istanbul Kent University, Türkiye

Prof. Dr. Zehra Büyüktuncer, Hacettepe University, Türkiye

Prof. Beniamino T. Cenci-Goga, University of Perugia, Italy

Assoc. Prof. Dr. Muhammet Emin Çam, Istanbul Kent University, Türkiye

Prof. Abdessamad Didi, National Center for Nuclear Science and Technology,  
Morocco

Prof. Dr. M. Zeki Durak, Yıldız Technical University, Türkiye

Prof. Dr. Güliz Erdem, Istanbul Kent University, Türkiye

Prof. Dr. İtır Erhart, Bilgi University, Türkiye

Prof. Bahram Hemmateenejad, Shiraz University, Iran

Assistant Prof. Dr. Eva Ivanišová, Slovak University of Agriculture in Nitra,  
Slovakia

Prof. Dr. Berna Laçın, University of Health Sciences, Türkiye

Dietitian Elvan Odabaşı

Prof. Dr. Mecit Halil Öztop, Middle East Technical University, Türkiye

Prof. Dr. Mehmet Pala, R&D Director TÜBİTAK, Marmara Research Center

Assoc. Prof. Dr. Patricia Rijo, Lusófona University, Portugal

Dr. Nizamettin Şentürk, Retired Deputy General Manager of MTA

Dr. Pharmacist Metin Uyar, Academic Author

Prof. Dr. Esra Tatar, Istanbul Kent University, Türkiye

Prof. Dr. Selda Yücel, Marmara University, Türkiye



# Contents

Hydrogeochemical Characteristics and Origin Of Geothermal and Mineral Waters in The Southwestern Region of Uludağ (Bursa) . . . . .	6
Label-Based Content Evaluation of Bottled Mineral Water Sold in Turkish and Swedish Markets . . . . .	8
A Bibliometric Analysis of The Health Effects of Mineral Water . . . . .	10
A Bibliometric Analysis of The Mental Health Effects of Mineral Water . . . . .	12
Assessment of The Cytotoxic Effects of The Powder of Şalgam, a Lactic Acid Fermented Beverage Based on Black Carrot, on Breast Carcinoma . . . . .	14
Bioavailability of Minerals in Mineral Water and Their Effects on Mental Health . . . . .	16
Can Mineral Water be a Safe Alternative in Sports Parameters and Sustainable Health to Energy and Sports Drinks for Adolescent Athletes? . . . . .	18
Potential Effects of Mineral Water on Gut Microbiota . . . . .	20
Efficacy of Tunnel Pasteurization System for Preservative-Free Production in Mineral Water Products . . . . .	22
Evaluation of Mineral Water Production and Consumer Behavior in Türkiye . . . . .	24
The Investigation of Public Interest to Mineral Water: a Google Trends Study . . . . .	26
Traces of Sustainability on Bottled Mineral Water Packaging: Türkiye vs. Sweden . . . . .	28
Development of Functional Mineral Water Using Apple Polyphenols and Soluble Dietary Fibers Extracted From Apple Pomace Waste Through Sequential Extraction Technology . . . . .	30
Acute Toxicity Assessment of Powdered and Liposomal Resveratrol That Can be Used in Mineral Water . . . . .	32
Antimicrobial Effects of Silver Nanoparticles Possibly Used in Food Packaging . . . . .	34
Advantages of Multivitamins Developed With Liposomal Technology . . . . .	36
In Vitro Investigation of Antimicrobial Activities of Camellia Sinensis, Salvia Officinalis, Aloe Vera and Thymus Vulgaris . . . . .	38
Investigation of The Antimicrobial Activity of Some Plant Extracts . . . . .	40
Liposomal Coenzyme Q10/Vitamin C: An Innovative Approach to Enhance Bioavailability Andanti-Inflammatory Effects in Neurological Diseases Via In Vitro Cell Culture And In Vivo Animal Tests . . . . .	42
Targeted 'Tfam' Activation and 'Mitoq' Therapy for Pearson Syndrome . . . . .	44
Mitochondria-Targeted Spathulenol-Loaded Retinosomes for Age-Related Macular Degeneration . . . . .	46
Alternative Food Sources as Functional Ingredients for Beverage Production . . . . .	48
Natural Mineral Water With High Antioxidant Fruit (Aronia and Blueberry) and Vitamin D3 . . . . .	50
Production and Characterization of Propolis-Loaded Liposomes With a New Formulation That Can be Used in Mineral Water . . . . .	51
Development and Characterization of Liposomal Systems for Improved Resveratrol Delivery . . . . .	52

# The Investigation of Public Interest to Mineral Water: a Google Trends Study

Esra Aladağ\*, Merve Sadık\*, Elif Günalan\*\*

## Abstract

The global bottled mineral water market tends to grow thanks to rising awareness of health and well-being. This industry is classified as manufactured mineral water and natural mineral water. Although Türkiye is among the countries rich in natural mineral waters, Asia-Pacific regions are primarily known in the natural mineral water market (1). Increasing the market volume and providing consumption motivation depends on understanding the public's interest. This study aims to understand global and local public interest' in mineral water via the Google Trends (GT) tool. GT provides daily, monthly, and yearly relative search volumes (RSV) of search queries in different countries and languages (2). This study selected the "shopping" category, and searches were conducted in Türkiye and worldwide. Keywords were searched in Turkish and English, and the search spectrum was "1 October 2014-1 October 2024" to determine monthly search queries. Search queries were classified into three parts: mineral water, different types of non-alcoholic beverages, including mineral water, and different terms of mineral water. Lastly, RSV values for search queries from 2014-2019 and 2019-2024 were also compared. Statistical analyses were completed with Jamovi software (version 2.6.2). Mineral waters' mean RSV in Türkiye are consistent with seasonal temperatures. Globally, the mean RSV of mineral waters has been higher than those of soft drinks, sports drinks, and fruit and vegetable juices. In the Türkiye, soft drinks have higher mean RSV than mineral waters. The mean RSV in mineral waters has significantly increased in 2019-2024 compared to 2014-2019, both local and global ( $p<0.05$ ). It could be related to changed health perceptions with the pandemic. Understanding search queries about mineral water will contribute to consumer health and raise awareness and market volume. According to the findings, the manufacturers should be informed about the opportunities and trends.

---

\* Istanbul Health and Technology University, Institute of Graduate Education.

\*\* Istanbul Health and Technology University, Faculty of Health Sciences, Department of Nutrition and Dietetics.

**Keywords:** Google Trends, mineral water, public interest

## References

Minghui B & Chelliah S., Marketing Strategies and Export Performance among Bottled Water Manufacturing in China. *Global Business & Management Research: An International Journal* (2022).

Cervellin, G and et al. Is Google Trends a Reliable Tool for Digital Epidemiology? Insights from Different Clinical Settings. *J Epidemiol Glob Health* (2017).

III. INTERNATIONAL

MINERAL WATER CONGRESS

Proceedings and Books of Abstracts

