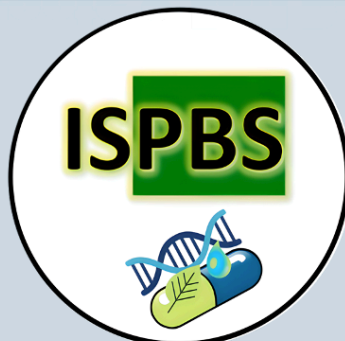


# PROCEEDINGS BOOK

Abstracts & Full Papers



## ISPBS-6

**The Sixth International Symposium on  
Pharmaceutical and Biomedical Sciences**



**26-28 May, 2022  
Gaziantep-TURKEY**



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# ISPBS-6





**ISPBS-6**  
**ABSTRACTS & PROCEEDINGS BOOK**  
26-28 May 2022, Gaziantep University-Türkiye  
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# **The Sixth International Symposium on Pharmaceutical and Biomedical Sciences**

## **ISPBS – 6**

# **PROCEEDINGS BOOK**

### **ABSTRACTS & FULL PAPERS**

**May 26<sup>th</sup> – 28<sup>th</sup>, 2022**

**Gaziantep University – TURKIYE**

**ISBN: 978-625-00-9240-8 (PDF)**



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**Esteemed Colleagues and Dear Friends,**



ISPBS-6 (The Sixth International Symposium on Pharmaceutical and Biomedical Sciences) aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on the interdisciplinary aspects of analysis in the pharmaceutical, biomedical, clinical and omics sciences, as well as topics in related scientific area. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Pharmaceutical, Biomedical and Biological Sciences.

Having respected scientific board and organizing committee members from all over the world, the ISPBS symposium series is the premier meeting for Pharmaceutical, Biomedical and Biological Sciences. It follows a series of successful symposium organized since 2016, when the first International Symposium on Pharmaceutical and Biomedical Sciences was launched at Kumamoto University-Japan. ISPBS-6 was organized on May 26-28, 2022 in an online manner (via ZOOM application) at Gaziantep University-Türkiye. This symposium was the sixth meeting series of ISPBS, and you can find abstracts of all the scientific works presented in ISPBS-6 in this ABSTRACTS & PROCEEDINGS BOOK.

We would like to thank for their sincere supports of Gaziantep University, Torbalı (Izmir) Chamber of Commerce-Turkey, Gaziantep University, Kumamoto University, Khon Kaen University, Rural Federal University of Rio de Janeiro (UFRRJ)-Brazil, Association of Medicinal and Aromatic Plants of Mediterranean, Association of Pharmaceutical Teachers of India, Cosmetic Producers and Researchers Associations, American Pharmacists Association, Japan Pharmaceutical Association, Phytochemical Society of Europe, Phytochemical Society of Asia, NS Herbals Company and all the other supporters. We would like to thank to all our participants from almost all over the world for their valuable attendance and scientific contribution to ISPBS-6. We are planning to organize the seventh meeting series of ISPBS in 2023 spring and on behalf of the organizing committee, we are looking forward to meeting you at ISPBS-7.

Sincerely,

**Assoc. Prof. Dr. Sevgi GEZICI**  
**Chair of ISPBS-6**

Faculty of Medicine, Department of Medical Biology,  
Gaziantep University, Gaziantep, TURKIYE



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*Strathclyde Institute of Pharmacy and Biomedical Sciences, Glasgow, UNITED KINGDOM*

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*NUS Graduate School for Integrative Sciences and Engineering; National University Cancer Science Institute, National University of Singapore (NUS), SINGAPORE*

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*Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Gazi University, Ankara, TURKEY*

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*Jackson Laboratory for Genomic Medicine, Farmington, CT, USA; Department of Immunology, University of Connecticut School of Medicine, Farmington, CT, USA*

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*Department of Analytical Chemistry and Food Science, Faculty of Food Science and Technology, University of Vigo, Vigo, SPAIN*

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# ORAL PRESENTATIONS





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### ORAL PRESENTATION

#### BETA ELEMENE CAUSES CYTOTOXICITY-MEDIATED CELL DEATH AGAINST FLT-3 ITD MUTATED ACUTE MYELOID LEUKEMIA

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#### Abstract

**Objective:** The FMS-like tyrosine kinase-3 internal tandem duplication (FLT3-ITD) is found in approximately 25% of all acute myeloid leukemia (AML) cases and is associated with poor prognosis. New and effective treatment options for FLT3-ITD AML are required.  $\beta$ -Elemene is an anticancer sesquiterpene which well known for strongly inducing cell death in cancer cells, and it is especially effective against drug-resistant and complex tumors. In this study, we aimed comprehensive investigation the anticancer potential of  $\beta$ -Elemene on FLT3-wild type (THP-1) and especially FLT3-ITD mutated (MV4-11) cells. **Methods:** Cellular viability analyses were performed with WST-1 assay in a time- and dose-dependent manner. Morphological assessment of  $\beta$ -Elemene treated MV4-11 cells were evaluated by microscopic analyses. The expression changes of three major apoptotic genes -Bax, Bcl-2, Caspase3- were analyzed with Quantitative real-time RT-PCR. For a more comprehensive elucidation of the cell death mechanism, high-throughput screening of targets that are responsible in cell death, survival and resistance was performed. The protein levels of 43 different targets were analyzed simultaneously with the Human Apoptosis Antibody Array. **Results:** Time and dose dependent cell viability analyses showed that  $\beta$ -Elemene has cytotoxic effects on both cell lines, but more selective to FLT3 ITD mutated cells. Morphological assessment indicated that especially doses of IC<sub>50</sub> and above  $\beta$ -Elemene treatment led to a stressful phenotype in MV4-11 cells. mRNA data from apoptotic markers revealed resistance. Moreover, the antibody array showed that 18 of the 43 apoptotic protein targets changed in a statistically significant manner.  $\beta$ -Elemene caused cell death with the induction of p53 and cell cycle arrest with the induction of p21 and p27. Increase in the levels of HSP proteins were observed. We also detected an increase in the levels of HTRA protein, which is involved in apoptosis or drug-associated cytotoxicity. It did not cause activation of membrane receptors and mitochondrial membrane degradation. **Conclusion/Discussion:** We can conclude that  $\beta$ -Elemene causes cytotoxicity-mediated cell death in ITD mutated AML cells, together with the effects of stress factors and inhibiting cell division. Our findings suggest that  $\beta$ -Elemene could be a promising drug candidate against AML. For more effective therapies,  $\beta$ -Elemene can be used with novel pharmaceutical formulations.

**Key Words:** Beta Elemene, FLT3, Acute Myeloid Leukemia, Cytotoxicity, Anti-cancer activity

#### Acknowledgements

This research has been funded by Scientific Research Deanship at University of Hail, Saudi Arabia through project number RG 20069.