CONTENTS

Research Articles

1191 A Quality-by-Design Enabled Green and White Analytical UPLC Method for the Comprehensive Quantification of Nitroso Impurities in Tegoprazan Bulk Drug and Formulations
Krishna Vamsi KANDIMALLA*°, Ajay MANUKONDA, Sambasiva Rao TUMMALA***, Tangeti Venkata SWAMY****, Govindarao YEDLAPALLI*****

1213 Evaluation of Antioxidant Properties and Metabolic Enzyme Inhibitory Potential of *Medicago sativa* L.
Sultan PEKACAR*, Ömer Furkan GÜVERTİ°, Burçin ÖZÜPEK***, Didem DELİORMAN ORHAN****

1227 Multi-Scale *In Silico* Discovery of Potent SARS-CoV-2 RdRp Inhibitors
Sena ÇİNKILIÇ*, Erol AKGÜN, Sevil ŞENKARDEŞ***, Necla KULABAŞ****°**

1249 LC–MS-Based Untargeted Metabolomics Characterizes Caffeine-Associated Metabolic Remodeling in LPS Stimulated RAW 264.7 Macrophages
Ozan KAPLAN*°, Ahmet AVCI, Vahap Murat KUTLUAY***

1269 Development and *In Vitro* Assessment of Butyrylcholinesterase-Loaded Micelles for Protection Against Central Neurotoxicity Induced by Organophosphate Exposure
Gizem Ruya TOPAL*, Ozgur ESIM°**

1285 Optimization of pH-Triggered Endosomal Escape in Lipid Nanoparticles Using 3ß[L-Histidinamide-Carbamoyl] Cholesterol for Therapeutic Aptamer Delivery
Ozan KILIÇKAYA*°, Cenk YILDIZ**

1299 Green Tea-Mediated Synthesis of Cadmium Oxide Nanoparticles: Characterization and Enhanced Antibacterial Activity Against Gram-Negative Pathogens
Alaa Z. SKHEEL*, Edmond CHEBLE, Talib Z.T. AL MOSAWI***, Nadhim A.K. ABDLUL-HUSSEIN****, Hasaneen Kudhair ABDULL ABASS*****, Bushra J. MOHAMMED******, Ali JABER******°**

1315 An Immunoinformatics-Based Multi-Epitope Vaccine Targeting Multiple Stages of Tuberculosis Pathogenesis
Sema KARABUDAK*°, Sümeyye ALTUNOK, Emre Can BULUZ***

1341 Potassium Channels as Resilient Targets for Airway Smooth Muscle Relaxation Under Inflammatory Stress
Yesim KAYA-YASAR*°, Turgut Emrah BOZKURT, Inci SAHIN-ERDEMLI***

1353 Comparative Genomics and Pangenome Analysis of *L. Paracasei* ATA-LTC-Lp121000 Strain: A Potential Probiotic from Türkiye
Halil KURT*°

1373 Development and Characterization of an Amaranth Oil Nanoemulgel Incorporating Nisin and Hydrolyzed Wheat Protein for Topical Delivery in Atopic Dermatitis
Ebru ALTUNTAŞ*°, Ceren KOCA, Müzeyyen AYDIN*****

1391 Biological Activities of the Endemic Plant *Colchicum figlalii:* Cytotoxic, Antioxidant, and Antimicrobial Properties
Tuğçe KELHASANOĞLU*, Anara BABAYEVA, Esra DİBEK***, Kenan AKBAŞ****, Çisem YILMAZ*****, Bekir ÇÖL******°**

1407 Experimental Screening and Kinetic Characterization of Natural SARS-CoV-2 3CLpro Inhibitors with Cell-Based Antiviral Evaluation
Beyza Tutku BICAKCI*, Oguz BAYRAKTAR, Irem Evfa KUCUK***, Aylin SENDEMIR****, Aykut OZKUL*****, Dilek YALCIN******°**

1427 Comparative Cytotoxicity and Wound Closure Effects of the Sunscreen UV Filters Bemotrizinol and Ethylhexyl Triazone in HaCaT and L929 Cell Lines
Duygu ALBAYRAK*, Mirkan ÖZIRMAK, Hande YÜCE***, Dilan AŞKIN ÖZEK****, Songül ÜNÜVAR*****°**

1437 Evaluation of the Bioactivities of Commercially Available Cold-Pressed Borage Fixed Oil (*Borago officinalis*) and Geranium Essential Oil (*Pelargonium graveolens*)
Hülya YİĞİT*°, Aybüke Afra BABACAN, Emine ÇELİKOĞLU***, Ceren BAŞKAN****

1451 Cardiometabolic Risks of Tramadol in the Setting of Obesity: Evidence from a High-Fat Diet Mouse Model
MD EBRAHIM*, MD. Abdur Rahman RIPON, Kheirun Nahar JENI***, MD. Anisur RAHAMAN****, Imtiaz AHMAD*****, Mohammad Salim HOSSAIN******°**

Review Articles

1465 Decoding the Neoantigen Landscape: Designing Precision Vaccines for Cancer Immunotherapy

Sneha J. YADAV*, Nuha I. KHAMKAR, Janhavi J. PATIL***, Diya H. AGA****, Pooja S. MANE*****, Dhanashree P. SANAP******°**

1493 Exploring NMDA Receptor Antagonists: Comprehensive Structural Analysis, Emerging Research Trends, and Therapeutic Prospects for Alzheimer's Disease

Meenakshi MEHRA*°, Chandra Shekhar TAILOR, Ramandeep SINGH*****

1513 A Current Alternative to Conventional Cancer Treatment Strategies: Photothermal Therapy

Armineh DELJAVAN GHODRATI* , Gulin AMASYA°, Ceyda Tuba SENGEL-TURK***°**

1537 Natural Polymer-Based Microspheres for Anti-Inflammatory Drug Delivery: Materials, Characterization, and Therapeutic Applications

Ike WIDYANINGRUM*, Andang MIATMOKO, Dewi Melani HARIYADI***°**

1561 The Endocannabinoid System in Allergic Airway Diseases: Mechanisms and Therapeutic Potential

Gaye ÖZTÜRK*, Tülay Özge ALPASLAN, Kerem ERDOĞAN***, Turgut Emrah BOZKURT****°**

1579 Overcoming Therapeutic Barriers in Alzheimer's Disease: From Nanotechnology to Microneedles

Stela MUÇAJ*, Alperen AĞCA, Tuğba GÜLSÜN***, R. Neslihan GÜRSOY****°**