

## TABLE OF CONTENTS

<b>Introduction</b>	VII
<i>Antimicrobial natural products I - Peptides</i>	
A strategy for controlling the pathogenic bacteria: Antimicrobial peptides <i>Heejeong Lee, and Dong Gun Lee</i>	3-8
Antimicrobial activity of cathelicidins of mammals from avian, aquatic and terrestrial environments <i>J.M. Pérez de la Lastra, C. Garrido-Orduña, C.L. Borges, A.A. Borges and A. Boto</i>	9-18
Antimicrobial Peptides as Novel Alternatives to Antibiotics in Swine and Poultry Industries <i>F.J. Ji, H.S. Yang, Z.Y. Cui and Y.L. Yin</i>	19-28
Antimicrobial Peptides from agro-industrial waste – a key to new antibiotics <i>Claudia M. Botelho CM, Jorge Padrão, Margarida Fernandes, Nicolina Dias, José Teixeira</i>	29-34
Characteristics of antibacterial peptides produced by bacteria <i>Y. M. Álvarez Cisneros, F. J Fernández and E. Ponce Alquicira</i>	35-45
Proteinoid microspheres - Fox & Harada model: their impact in Structural Proteomics <i>C. Polanco, A. Ponce de León, M. Bañuelos Cedano, and P. Vazquez González</i>	46-51
<i>Antimicrobial natural products II - Terrestrial and marine organisms</i>	
Anthraquinones as potential antimicrobial agents - A review <i>M. Malmir, R. Serrano and O. Silva</i>	55-61
Antibacterial and antimalarial activity of Angolan <i>Cymbopogon citratus</i> essential oil <i>Pedro d. P. Catarino Pires, M. Sekhoacha, M. Matsabisa, M. Tselanyane, Ana F. Vinha and M. O. Soares</i>	62-67
Antimicrobial activity of <i>Eucalyptus globulus</i> oils <i>G. Bachir Raho</i>	68-78
Antimicrobial activity of <i>Myracrodruon urundeuva</i> <i>Vandbergue Santos Pereira, Johnatan Wellisson da Silva Mendes, Roberta Davila Pereira de Lima</i>	79-86
Antimicrobial agents from terrestrial Plants <i>Birendra Prasad, Kumar Pranay, Parmanand Verma, Vijay Kumar Jha, Navneel and Pinky Dayal</i>	87-95

Antimicrobial natural products II - Terrestrial and marine organisms <i>Ashba Hassan and Imran Sajid</i>	96-107
Antimicrobial potentialities of mushroom-based selenium biocomposites <i>O. M. Tsivileva, A. I. Perfileva, T. P. Nguyen, A. M. Zakharevich, and P. A. Poluboyarinov</i>	108-119
Bioactives derived from Autumn Olive berries are effective antioxidants, antibacterial agents and a skin moisturizer <i>John J. Wille and Mark A. Berhow</i>	120-126
Medicinal plants of antimicrobial and immunomodulating properties <i>Emad Mohamed Abdallah and Waleed S. Koko</i>	127-139
Novel Ferrocenyl Chalcone Compounds as Possible Antimicrobial Agents <i>Elecia J Henry, Robert B Smith, Michael Collins, Susan J Bird, Pauline Gowland, John P Cassella</i>	140-148
Odors (volatiles) in the plants was a weapon to fight bacteria <i>Sasaki J, Yamauchi K</i>	149-154
Secondary metabolites from Cactaceae with antifungal effect <i>R. Sánchez-Herrera, S. Loza-Cornejo, C.E. Ochoa-Velasco, R. Ávila Sosa-Sánchez and X. Aparicio-Fernández</i>	155-165
Soil <i>Bacillus</i> - A natural source of antifungal compounds against <i>Candida</i> infection <i>S.K. Nayak, B. Baliyarsingh, B. Dash and B.B. Mishra</i>	166-176
Use of essential oils in food preservation <i>M. Laranjo, A. M. Fernández-Léon, M. E. Potes, A. C. Agulheiro-Santos and M. Elias</i>	177-188
Use of plant extracts to control bacterial foodborne pathogens <i>D. S. Volcan Maia, G. Volz Lopes and W. Padilha da Silva</i>	189-197

***Biocontrol. Biosynthesis of antimicrobials***

Antimicrobial activity of probiotic microorganisms: mechanisms of interaction and methods of examination <i>R. Denkova, B. Goranov, D. Teneva, Z. Denkova and G. Kostov</i>	201-212
Antimicrobial Effect of Probiotics, Prebiotics and Synbiotics <i>Gözde Konuray and Zerrin Erginkaya</i>	213-218
Biopreservatives from yeasts with antimicrobial activity against common food, agricultural produce and beverage spoilage organisms <i>M. Mewa-Ngongang, S.K.O. Ntwampe, H.W. du Plessis, L. Mekuto and N.P. Jolly</i>	219-228

---

**Bacteriophages**

A laboratory activity using bacteriophages, the forgotten weapon against bacteria <i>S. Campoy, P. Cortés, J. Aranda, M. Sánchez-Osuna, J. Barbé and M. Llagostera</i>	231-241
Bacteriophage applications as biocontrol agent in food packaging materials <i>S. Kalkan, E. Ünal Turhan and Z. Erginkaya</i>	242-250
Bacteriophage taxonomy and classification <i>Galina Novik, Alena Ladutska and Dzianis Rakhuba</i>	251-259
Bacteriophage: Clinical Applications <i>A. A. Attama, I. S. Agbo, I. E. Eke, E. B. Onigbo and J. C. Ogbonna</i>	260-269

**Biofilms**

Antimicrobial: research, bioknowledge, education chapter on biofilm <i>Pathak S, Sushmitha S, Ganesan J, Murugesan R, Marotta F, Bissi L, Banerjee A</i>	273-279
Bacterial Biofilm and Antibiotic Resistance <i>Debdeep Dasgupta, Abhinash Kumar and Tapas K. Sengupta</i>	280-288
Bacterial biofilm detection methods in the laboratory <i>M. Alper Ergin</i>	289-293
Barrier layers based on nanostructured fluorocarbon films: structure, interaction with microorganisms, mechanical properties <i>V. Elinson, S. Andreevskaya, A. Lyamin, N. Shevlyagina, V. Zhukhovitsky, P.A. Shur</i>	294-300
Biofilm Structure of Foodborne Pathogens <i>I. Var and S. Sağlam</i>	301-307
Biofilms and Their Advantages/Disadvantages in Food Industry <i>Goksen Gulgor and Mihriban Korukluoglu</i>	308-314
Control of fungal biofilm formation in dental environment <i>W. Mazari, I. A. El Hacı and Z. Boucherit Otmani</i>	315-323
Mechanisms and methods to combat biofilm tolerance <i>Z. Yan and B. Kjellerup</i>	324-330
Quenching bacterial communication: Innovative strategies for biofilm inhibition <i>N. Weiland-Bräuer and R. A. Schmitz</i>	331-343
The Use of Nanoparticles to Prevent and Eliminate Bacterial Biofilms <i>Lan Hu</i>	344-350

The use of phages for the removal of biofilms in the food industry <i>E. Unal Turhan, S. Kalkan, Z. Erginkaya</i>	351-357
--	---------

***Antimicrobial materials science and surface chemistry. Antimicrobials in consumer products***

Antimicrobial bioactive materials and treatments for leather preservation <i>M. (Koizhaiganova) Kaygusuz, I. Yaşa</i>	361-367
Aptamers as promising agents in diagnostic and therapeutic applications <i>D. Kubiczek, N. Bodenberger and F. Rosenau</i>	368-378
Assessment of Zeolites as Antimicrobial Fragrance Carriers <i>Rumeysa Tekin, Huseyin Erdogmus, Nurcan Bac</i>	379-384
Elaboration and characterization of antifungal properties of biodegradable film added with cinnamon oil <i>P. Hernández Carranza, S. Mendoza Vázquez, J. A. Guevara García, S. Cid Pérez, R. Ávila Sosa and C. E. Ochoa Velasco</i>	385-391
Innovative metal oxides in antimicrobial surfaces <i>S. Shafaei, C. Zollfrank</i>	392-407
Jelly Bombs – Hydrogels as Weapons against Microorganisms <i>N. Bodenberger, D. Kubiczek, D. Halbgebauer, C. Tanzer, N. Pfahler, F. Rosenau</i>	408-419
Microorganisms isolated and antimicrobial treatments applied at different stages of leather processing <i>M. (Koizhaiganova) Kaygusuz, N. O. Işık</i>	420-426
Smart antimicrobial materials with the immobilized gemini surfactants <i>Bogumił E. Brycki, Iwona Kowalczyk and Adrianna Szulc</i>	427-437

***Clinical and medical microbiology***

Anti-microbial and immunomodulatory properties of indigenous plants found in Central and Southern Africa <i>AN. Traoré, MT. Sigidi, MM. Boukandou, MI. Ntlhamu, R. Musoliwa, MP. Tshisikhawe and N. Potgieter</i>	441-452
Clinical and pathogenicity aspects of <i>Candida</i> species <i>F. Silvestre Ataides and M. R. Rodrigues Silva</i>	453-462
Control and prevention of infectious bursal disease: a review <i>S. Tesfaheywet Zeryehun</i>	463-471
Evaluation of the <i>in vitro</i> bactericidal activity of a sodium hypochlorite solution sold in the Cameroonian markets on the germs responsible for nosocomial diseases in Cameroon <i>J.G.L.F. Ekwe Priso, F. Koro Koro, R.S. Moukeu, A. L. Mokale Kognou, R.A. Ngonu Ngane</i>	472-476

Fungal Hydroxamate Siderophores: biosynthesis, chemical synthesis and potential medical applications <i>T. Garnerin, A. Dassonville-Klimpt, P. Sonnet</i>	477-488
Heat Shock Proteins: innate immune stimulators of <i>C. elegans</i> <i>Udayakumar Prithika and Krishnaswamy Balamurugan</i>	489-494
Human gut microbiota and immune system <i>A. L. dos Santos Silva, E. C. Lourenço dos Santos and A. M. Queijeiro López</i>	495-503
Therapeutic potential of extracts from Amazonian plants with antimicrobial activity <i>F. C. S. Pires, M. M. Almeida, A. P. S. Silva, M. A. R. Salazar, G. R. O. Urbina, P. S. Silva, S. G. Silva, P. N. Bezerra, S. H. Marques- da -Silva, R. N. Carvalho Junior</i>	504-515
Urinary Tract Infections: A major global public health issue – Consequences and natural way of management <i>Dr. Saad Bin Zafar Mahmood and Dr. Zafar Alam Mahmood</i>	516-525

***Antimicrobial resistance. Mechanisms of action of antimicrobial agents***

Anti-quorum sensing activity of plants <i>Mihriban Korukluoglu and Goksen Gulgor</i>	529-535
Antibiotics: Mode of action and mechanisms of resistance <i>A. Dowling, J. O' Dwyer and C.C. Adley</i>	536-545
Antimicrobial resistance and mechanism of action of antimicrobial resistance <i>Nwiyi, P. O., Akade, F.T, Ukwani, I. A. and Erumaka, I.</i>	546-552
Bacterial resistance challenged by binary antimicrobial combinations <i>N.M. De la Fuente-Salcido, D. López-De la Cruz and A. Alejo Andrade</i>	553-560
<i>Campylobacter</i> spp. and <i>Salmonella</i> spp. strains from meat matrices: resistance genes involved and molecular methods to detect <i>B. S. Frasao and C. A. Conte-Junior</i>	561-571
Efflux pumps in <i>Acinetobacter baumannii</i> : role in antibiotic resistance and interest of efflux pump inhibitors as additional therapeutic weapons <i>C. Mullié, B. Bouharkat, R. Guiheneuf, C. Serra, A. Tir Touil-Meddah and P. Sonnet</i>	572-583
Generic transcriptional response of <i>E. coli</i> to stress <i>Ranginee Choudhury, Saroj Kant Mohapatra</i>	584-592
New and emerging SXT/R391 integrative conjugative elements as vehicles for stable mobile element transfer and spread of antibiotic resistance in both human and animals <i>Michael P Ryan, Patricia Armshaw and J Tony Pembroke</i>	593-598
Recent advances in antimalarial drugs: structures, mechanisms of action and clinical trials <i>J.-P. Jourdan, J. Schneider, A. Dassonville-Klimpt, P. Sonnet</i>	599-609

Small molecules as regulators of bacterial Quorum Sensing. New strategy in the development of antimicrobial agents <i>Carlos Mario Meléndez Gómez and Vladimir V. Kouznetsov</i>	610-622
---	---------

***Techniques and Methods***

Antimicrobial studies on creams obtained with clove oil and with waste aqueous phase remaining after the clove oil distillation <i>A. Wróblewska, E. Makuch, Ł. Kucharski, A. Klimowicz and A. Markowska-Szczupak</i>	625-632
Effect of operation practices of raw milk in small production systems on microbiological quality in Tlaxcala, Mexico <i>F. Calderón-Sánchez, A.R. Navarro-Cruz, R. Ávila-Sosa and P. Munguía-Villeda</i>	633-637
Evaluation of the Seegene PCR for detection of enteric pathogens <i>T. H. Frandsen, J. A. L. Kurtzhals, F. Scheutz and L. P. Andersen</i>	638-643
Lipidomics: Novel Strategy to Conquer Antimicrobial Resistance <i>Rahul Pal, Saif Hameed and Zeeshan Fatima</i>	644-650
Mycobacterial infection of macrophages: the effect of the multiplicity of infection <i>P. Bettencourt, N. Carmo, D. Pires, P. Timóteo and E. Anes</i>	651-664
Polar profile of random proteins and their incidences in Uniprot Database <i>C. Polanco</i>	665-670
Review on experimental parameters of antimicrobial susceptibilities <i>Rishan Singh</i>	671-674
The laboratory identification of carbapenemases: an overview <i>Shamala Moodley and Dharshni Pillay</i>	675-682