

Mallappa Kumara Swamy *Editor*

Plant-derived Bioactives

Production, Properties and Therapeutic
Applications

 Springer

Editor

Mallappa Kumara Swamy
Department of Biotechnology
East West First Grade College
Bengaluru, Karnataka, India

ISBN 978-981-15-1760-0 ISBN 978-981-15-1761-7 (eBook)
<https://doi.org/10.1007/978-981-15-1761-7>

© Springer Nature Singapore Pte Ltd. 2020

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Bioactive Compounds from Brazilian Lichens and Their Biotechnological Applications	209
Eugênia C. Pereira, Nicácio H. da Silva, Maria de Lourdes L. Buril, Mônica C. B. Martins, Hianna A. M. F. Silva, Emerson Peter S. Falcão, Helinando P. de Oliveira, Mateus Matiuzzi da Costa, Maria Estrella Legaz, Rocío Santiago, and Carlos Vicente	
Cardiovascular Benefits of Dietary Polyphenols	239
Boon Hee Goh and Joash Ban Lee Tan	
Antidiabetic Phytochemicals and Their Applications in Modern Medicine	259
Mahesh Sreekantan Krishna and Karthika Bahulayan Arun	
Phytochemicals as Antiviral Agents: Recent Updates	279
Ritu Ghildiyal, Vijeta Prakash, V. K. Chaudhary, Vandana Gupta, and Reema Gabrani	
Antimalarial Agents from Medicinal Plant and Fungal Sources	297
Grazia Luisi, Simone Carradori, Rossella Grande, Daniela Secci, and Paolo Guglielmi	
Bioactive Phytocompounds to Fight Against Antimicrobial Resistance	335
Gnanasekeran Karthikeyan, Mallappa Kumara Swamy, Madheshwar Rajha Viknesh, Rajendran Shurya, and Natesan Sudhakar	
Enzyme Inhibitory Potentials from Brazilian Flora	383
Luiz Everson da Silva, Camila Confortin, Michele Debiassi Alberton, Diogo Alexandre Siebert, and Camila Jeriane Paganelli	
Essential Oil-Bearing Plant Species of the Atlantic Rain Forest of Brazil: Chemical Composition and Biological Activities	395
Luiz Everson da Silva and Camila Confortin	
Essential Oils as Effective Agents Against Neurological Disorders	409
Sandeep Ramchandra Pai, Varsha Vasanttrao Sonkamble, and Nilesh Shirish Wagh	
Traditional Plant Compounds for the Treatment of Neuropsychiatric Disorders	435
Inshah Din, Mumtaz Anwar, Sheikh Rayees, and Fayaz Malik	



Essential Oils as Effective Agents Against Neurological Disorders

Sandeep Ramchandra Pai, Varsha Vasanttrao Sonkamble,
and Nilesh Shirish Wagh

Abbreviations

ABTS	2,2'-Azino-bis (3-ethylbenzothiazoline-6-sulfonic acid)
AChE	Acetylcholinesterase
AD	Alzheimer's disorder
AKT	A serine/threonine protein kinase (also known as protein kinase B) encoded by an oncogene found in a retrovirus causing thymomas in a mouse AKR strain
BChE	Butyrylcholinesterase
C/EBP	CCAAT/enhancer-binding protein
CAT	Catalase
CNS	Central nervous system
DPPH	2,2-Diphenyl-1-picrylhydrazyl
EO	Essential oil
ER	Endoplasmic reticulum
GABA	Gamma-aminobutyric acid
GC-FID	Gas chromatography-flame ionization detector
GC-MS	Gas chromatography-mass spectrometry
GPX	Glutathione peroxidase
<i>IL-6</i>	Interleukin 6
LC3	Light chain 3
L-DOPA	L-3,4-Dihydroxyphenylalanine
MPTP	1-Methyl-4-phenyl-1,2,3,6-tetrahydropyridine
mRNA	Messenger ribonucleic acid
mTOR	Mammalian target of rapamycin

S. R. Pai · N. S. Wagh (✉)
Amity Institute of Biotechnology, Amity University Mumbai, Panvel, Mumbai, India

V. V. Sonkamble
Swami Ramanand Teerth Marathwada University, Nanded, India