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A Mechanistic Exploration of Natural Compounds for Neuronal Health

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 Springer

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ISBN 978-981-95-0124-3 ISBN 978-981-95-0125-0 (eBook)
<https://doi.org/10.1007/978-981-95-0125-0>

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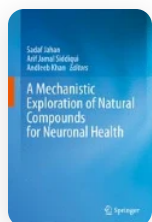
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Natural Compounds and Oxidative Stress Management

| Chapter | First Online: 01 October 2025

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 101 Accesses  1 Citation

Abstract

Natural compounds and their bioactive derivatives are rich sources of antioxidants, including flavonoids, anthocyanin, polyphenols, lignans, carotenoids, and vitamins. Antioxidants can manage oxidative stress-related infections and chronic inflammation by boosting the immune system. A resilient immune system will neutralize harmful free radicals in our body and reduce their levels. The trigger factor for production of oxidative stress is an imbalanced state between free radical formations to available antioxidants present in the body. Natural plant extracts exhibit multi-therapeutic effects by modulating diverse biochemical pathways. Additionally, the lower toxicity associated with natural products and their secondary metabolites reduces the risk of side effects. Antioxidants can regulate both stress-induced signaling pathways and oxidative defensive pathways. Secondary metabolites extracted from natural compounds exhibit both antioxidant and

anti-inflammatory activities. Antioxidants' ability to scavenge reactive oxygen species (ROS) makes them promising candidates for treating several illnesses, such as neurodegenerative diseases, diabetes, and cancer. This book chapter highlights the therapeutic effects ingrained in natural sources of antioxidants and tries to shed light on exploring the exact mechanism behind the therapeutic effects.

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