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A Mechanistic Exploration of Natural Compounds for Neuronal Health

 Springer

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Natural Compounds and Mitochondrial Function

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Mohsin Vahid Khan, Mohd. Rumman, Gulam Rabbani,
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Abstract

Approximately 1.6 billion years ago during evolution, a mortal eukaryotic host cell engulfed and permanently confined the immortal prokaryotic purple non-sulphur bacteria via endosymbiosis, and such union resulted in the creation of the energy-producing organelle known as mitochondria. It is popularly designated as the powerhouse of the cell and organelle in-charge for orchestrating several activities such as oxidation of fatty acids, energy production, cell death, cell cycle regulation and intracellular homeostasis. Mitochondria contain their own genome and synthesize some specific proteins and mitochondrial tRNA, while they entail several proteins expressed from nuclear DNA. Substrate utilization and subsequently ATP production through oxidative phosphorylation (OXPHOS) are prime functions of mitochondria and vital for performing numerous metabolic reactions within cells. Moreover, they also manage the excessive reactive oxygen species (ROS) from exerting a detrimental impact. The growing body of evidence over the past couple of decades dispelled ambiguity and demystified the link between health and mitochondrial functions. Compromised mitochondrial function, referred to as mitochondrial dysfunction due to reduced

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