

## **Anti-inflammatory effects of Natural and synthetic compounds in neurodegenerative disorders**

Oxidative stress and chronic neuroinflammation are two key pathologic factors in brain aging and many neurodegenerative diseases, including Alzheimer's disease (AD), Parkinson's disease (PD), amyotrophic lateral sclerosis (ALS), Huntington's disease (HD), and multiple sclerosis (MS).

Brain is an immune-privileged organ, since parenchymal cells (i.e., neurons, astrocytes, microglia, and oligodendrocytes) of the CNS are separated from the rest of body by BBB. However, in recent years, substantial evidence shows that the brain itself is fully immune competent due to the participation of microglia and astrocytes in immune response.

Activated microglia is an abundant source of free radicals in the brain to release excessive harmful ROS and RNS, which in turn stimulate glial activation and innate immunity. Therefore, oxidative stress and neuroinflammation are two concomitant processes in both brain ageing and neurodegenerative diseases.

Phytochemicals or nutraceuticals are proven to be important regulators of brain health and diseases, which can decrease production of proinflammatory cytokines and oxidative damage and exert significant neuroprotective effect in neurodegenerative diseases.

This special issue will focus the role of various natural or synthetic compounds discussing their neuroprotective mechanism and therapeutic implication for neurodegenerative diseases, including the development of strategies for preventing and managing Neurodegenerative diseases that represent a considerable public health concern.

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