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Antioxidant and inhibitory activity towards acetylcholinesterase and adenosine deaminase of essential oils from Nigeria ginger (*Zingiber officinale*) and turmeric (*Curcuma longa*) rhizomes

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Studies have shown that neuroinflammatory processes play an important role in the pathogenesis of neurological disorders. Therefore, plant foods with anti-inflammatory potential could be used to slow the progression of these diseases. Hence, the present study sought to investigate the effect of essential oils from Nigeria ginger and turmeric rhizomes on some inflammatory biomarkers (IL-6, IL-10, and TNF-Alpha) as well as acetylcholinesterase (AChE) and adenosine deaminase (ADA) activities (key enzymes associated with neurodegeneration) in cadmium-induced neuroinflammation in rats. The result revealed that essential oil from ginger and turmeric rhizomes exert an immunomodulatory effect by preventing alterations of some cytokines (IL-6, IL-10, and TNF-Alpha) levels in Cd-treated rats. In addition, the essential oils inhibited hippocampus and pre-frontal cortex AChE and ADA activities in Cd-treated rats. In conclusion, essential oil from ginger and turmeric rhizomes could be harness as anti-inflammatory drugs/supplements for the management/prevention of neurodegenerative diseases associated with inflammation.

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