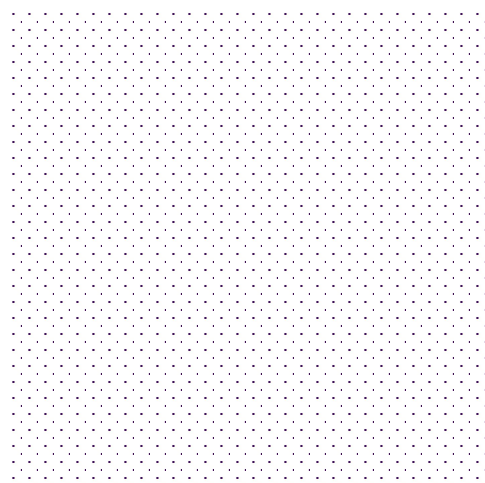


in vitro and ex vivo STUDY OF THE ANTIOXIDANT AND NEUROMODULATORY EFFECTS OF GALLIC ACID

P1-001

Chuks-Nsiagwai D.C.

Gallic acid has neuromodulatory effects and also antioxidative properties which can help protect the body from neurodegenerative conditions such AD and PD

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Antioxidants shield cells against oxidative stress-related harm which has resulted in various chronic diseases. Gallic acid is a type of phenolic acid that contains antioxidant properties. It is present in nearly every part of plants like leaves of bearberry, pomegranate root bark, gallnuts and tea. Conditions such as Alzheimer’s disease (AD) and Parkinson’s disease (PD) have been linked to oxidative stress and high levels of acetylcholinesterase and monoamine oxidase. This study considered the antioxidant and neuromodulatory properties of Gallic acid, placing emphasis on its potential therapeutic applications in the fight against neurodegenerative disorders and other disorders linked with oxidative stress.	Antioxidant capacity of Gallic Acid was assessed using the DPPH, hydroxyl and nitric oxide radicals, iron chelation, FeSO4 induced lipid peroxidation and ferric reducing antioxidant power assays using established methods. Acetylcholinesterase and monoamine oxidase inhibition assays were also carried out using standard methods. Statistical analysis was performed using GraphPad prism software (version 9.0.0) and Microsoft excel (version 2016). Results are presented as mean ± standard error of mean (SEM). EC50 and IC50 values were determined through linear regression analysis (p<0.05).	The results of the study showed that Gallic acid inhibited acetylcholinesterase better than the controls (Ascorbic Acid) used (IC50 = 0.153mM)) but donepezil (one of the controls used) inhibited monoamine oxidase better than Gallic acid (IC50 = 1.706mM). Gallic acid chelated iron (EC50 = 0.121mM) and scavenged DPPH (EC50 = 0.486mM), OH (EC50 = 0.190mM), NO (EC50 = 0.301mM) effectively in a concentration dependent manner. Ascorbic acid was better at dealing with FeSO4 induced lipid peroxidation than Gallic acid (EC50 = 0.0068mM).	From the results of this study, it is shown that Gallic acid, being a phenolic acid, exhibits potent antioxidant and neuromodulatory properties, which surpasses other traditional antioxidants like ascorbic acid in the assays conducted. Although its MAO inhibitory effect is limited, due to its hydroxyl group. Gallic acid shows promising AChE inhibition, indicating potential therapeutic benefits in neurodegenerative diseases like Alzheimer ’s disease.	References Text Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt References Al Zahrani, N. A., El-Shishtawy, R. M., and Asiri, A. M. (2020). Recent developments of Gallic acid derivatives and their hybrids in medicinal chemistry: A review. European Journal of Medicinal Chemistry, 204, 112609. https://doi.org/10.1016/j.ejmech.2020.112609 Bhuia, M. S., Rahaman, M. M., Islam, T., Bappi, M. H., Sikder, M. I., Hossain, K. N., Akter, F., Al Shamsh Prottay, A., Rokonzuzman, M., Gürer, E. S., Calina, D., Islam, M. T., and Sharifi-Rad, J. (2023). Neurobiological effects of Gallic acid: current perspectives. Chinese Medicine, 18(1), 27. https://doi.org/10.1186/s13020-023-00735-7 Text Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua References Text Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut
CONTACT				
 Email of author: chuksdaniel07@gmail.com 				