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# AQUEOUS CORNUS MAS L. EXTRACTS AGAINST ROS-MEDIATED NEURODEGENERATION

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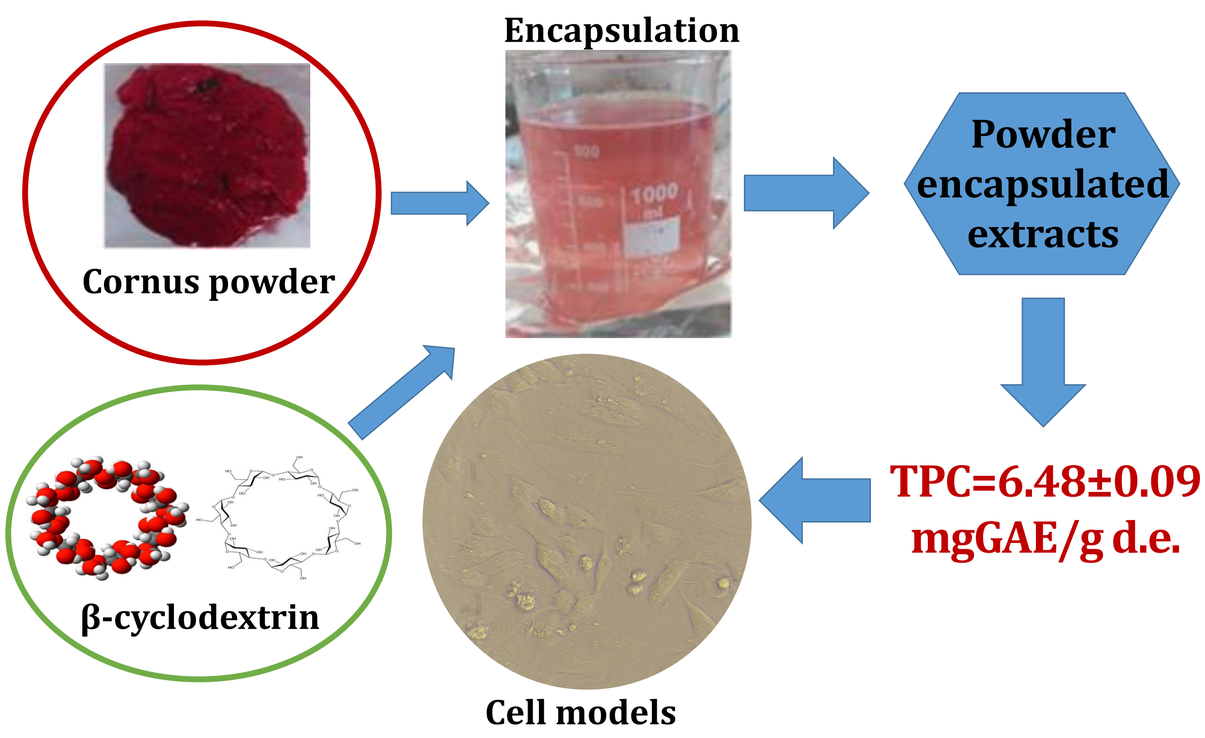
**Abstract**: Research was launched in our laboratory to delineate the *in vitro* efficacy of aqueous *Cornus mas* L. extracts as nutraceutical agents against ROS-mediated neuronal damage. The ROS-sensitive neuronal cell lines, representing human and mice phenotype, acted as biologically relevant models for neurodegeneration, while $H_2O_2$ represented ROS. After the complete (a)toxicity profile of the extracts, the bioactivity profile was investigated, including the antioxidant and anti-inflammatory potential of the extracts, in dose-, time-, and cell line-dependent fashion. After that, the potential synergy with bioavailable metallodrugs was evaluated, hinting towards a significant potential as nutraceutical, further enhanced by Zn(II) supplementation.

## • Introduction

Neurodegeneration is characterized by neuronal dysfunction and death, with the main phenotype including compromised motor function, loss of memory and cognitive decline. Mounting evidence suggest that oxidative stress plays a crucial role in its onset and progression [**1**,**2**]. Based on this premise, key natural herbs, such as *Cornus mas* L., provide key bioresources of bioactive compounds, linked to beneficial properties in human health, as part of folk medicine, especially in Asia [**3**].

## • Material and method




## • Conclusions

- Production of aqueous *Cornus mas* L. extracts were optimized.
- The complete cytotoxic profile was established *in-vitro* in neuronal cell lines.
- Antioxidant and anti-inflammatory potential was investigated, further enhanced by Zn(II) metallodrug.

## • Results and discussions

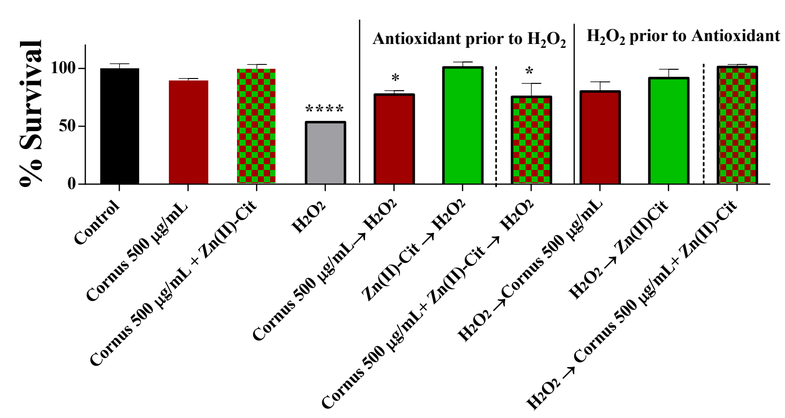



**Figure 1:** Antioxidant viability of aqueous extracts and Zn(II)-Cit

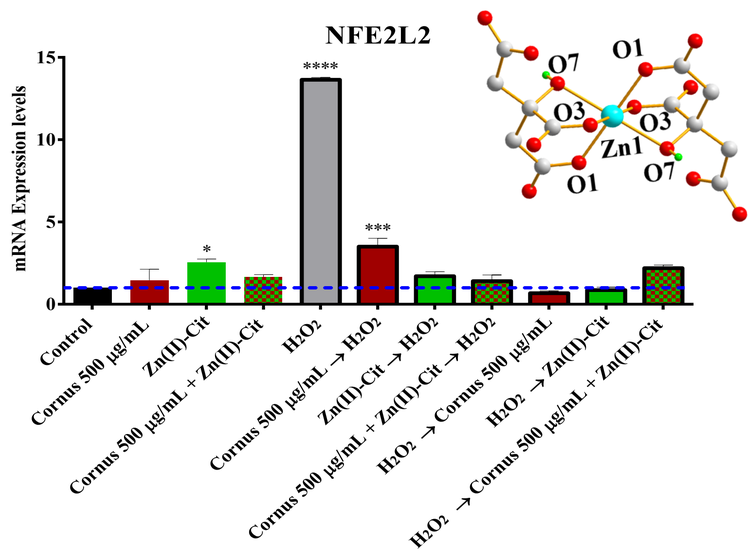



**Figure 2:** Antioxidant mechanism of aqueous extracts and Zn(II)-Cit

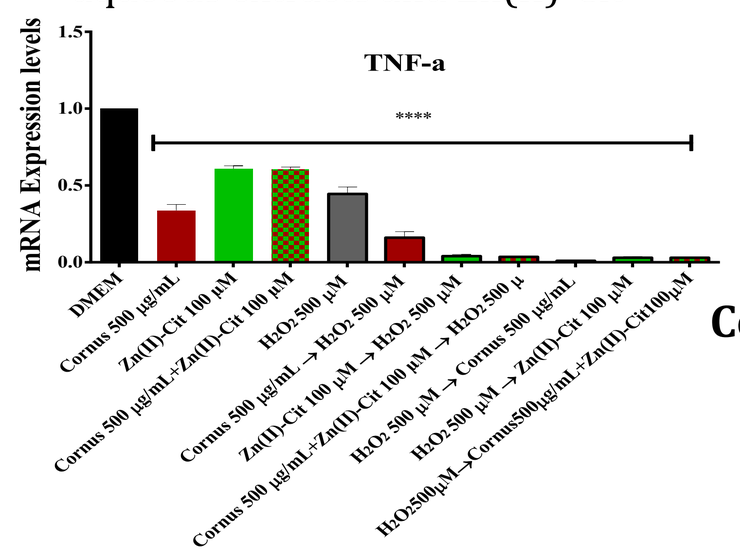
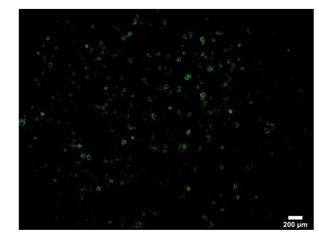
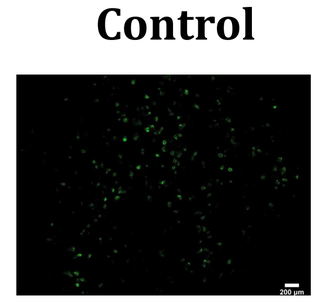


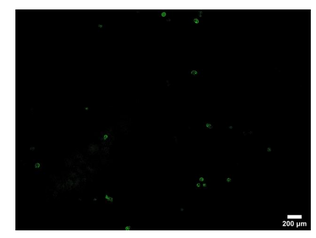

**Figure 3:** Anti-inflammatory mechanism of aqueous extracts and Zn(II)-Cit



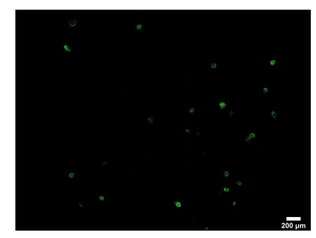
**Control**



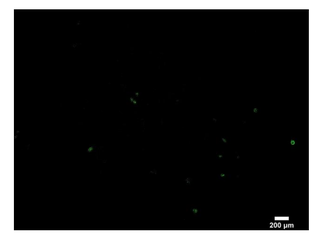
**$H_2O_2$**



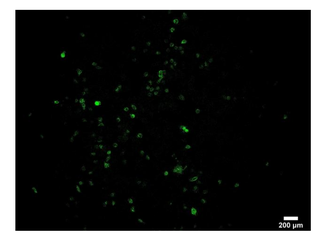
**Cornus -- $H_2O_2$**



**$H_2O_2$ -- Cornus**



**Cornus + Zn -- $H_2O_2$**



**$H_2O_2$ -- Cornus + Zn**

## References:

[1] Angeloni C., Vauzour D. (2019) Int. J. Mol. Sci., 20(22) 5570.
[2] Li J., O W., Li W., Jiang Z.G., Ghanbari H. (2013) Int. J. Mol. Sci., 14(12) 24438-24475.
[3] Kazimierski M., Regula J., Molska M. (2019) Acta Sci. Pol. Technol. Aliment., 18(1) 5-12.

## Acknowledgement:

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