

**In-Vitro Antioxidant study of *Colebrookea oppositifolia* Sm. extract for treatment of Alzheimer’s Disease**

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INTRODUCTION & AIM

**Background:** Dementia, a major cause of dependency, disability, and mortality, characterized by a progressive cognitive decline that makes daily tasks difficult. Alzheimer's disease, a major neurodegenerative dementia, primarily affects the elderly population. Early identification and the usage of natural plant-based phytoconstituents may lower the risk and delay the advancement of the condition, even though there are presently no disease-modifying medications available.

**Aim(s):** The research aimed to find out the antioxidant and neuroprotective potential of plant derived phytoconstituent for the treatment of Alzheimer’s disorder

METHOD

**Methods:** The Soxhlet extraction method was used to isolate the primary phytoconstituent from the plant (*Colebrookea oppositifolia* Sm.) using its aerial and root parts. The particular extraction technique used complies with the requirements as stated. The antioxidant potential of the plant phytoconstituent was then assessed using an *in-vitro* antioxidant assay.



RESULTS & DISCUSSION

The percentage yield for the plant extract carried out by using the hot continuous percolation technique (Soxhlet Extraction Method). In comparison to the aerial parts (13.80% w/w), the root extract (14.10% w/w) was found to have a higher percentage yield. During the *In-vitro* analysis, the root extract showed higher antioxidant potential compared to the aerial extract.

Sample	Solvent used	Sample Weight	Final Extract Obtained	Percentage Yield (w/w)
Aerial part	Ethanol	500g	69g	13.80
Second Sample	Solvent used	Sample Weight	Final Extract Obtained	Percentage Yield (w/w)
Roots	Ethanol	500g	70.5g	14.10

Phytochemicals	Aerial Part Extract	Root Part Extract
Alkaloids	+	+
Flavonoids	+	+
Phenolic compounds	+	+
Steroidal compounds	+	–
Tannins	+	+
Cardiac glycosides	+	+
Saponins	+	+
Carbohydrates	+	+
Terpenoids	+	+

CONCLUSION

The plant extract (root) showed significant antioxidant potential based on preliminary results, and it was chosen for further thorough research including the *In-vivo* studies (animal study).

FUTURE WORK / REFERENCES

To fully investigate its potential medicinal uses, more research is necessary which is in continue phase with *In-Vivo* studies in rodents.

Fox NC, Belder C, Ballard C, Kales HC, Mummary C, Caramelli P, Ciccarelli O, Frederiksen KS, Gomez-Isla T, Ismail Z, Paquet C. Treatment for Alzheimer's disease. The Lancet. 2025 Sep 27;406(10510):1408-23.

Malik R, Mittal A, Kumar P. Antioxidant Potential of Colebrookea oppositifolia Sm. Extracts: An In Vitro Screening Study. Engineering Proceedings. 2025 Sep 12;87(1):107.

Malik R, Kalra S, Bhatia S, Al Harrasi A, Singh G, Mohan S, Makeen HA, Albratty M, Meraya A, Bahar B, Tambuwala MM. Overview of therapeutic targets in management of dementia. Biomedicine & Pharmacotherapy. 2022 Aug 1;152:113168.