

Comparative Phytochemical and Antioxidant Analysis of *Acalypha wilkesiana* Extracts Using Different Solvents

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INTRODUCTION

Medicinal plants are a rich source of bioactive compounds with therapeutic potential. Antioxidants play a critical role in combating oxidative stress associated with chronic diseases. The extraction of these compounds depends on solvent polarity, affecting yield and composition. *Acalypha wilkesiana* provides an excellent model for such studies. This work presents an evaluation of phytochemical content and antioxidant activity of *A. wilkesiana* extracts obtained using solvents of varying polarity.

OBJECTIVE

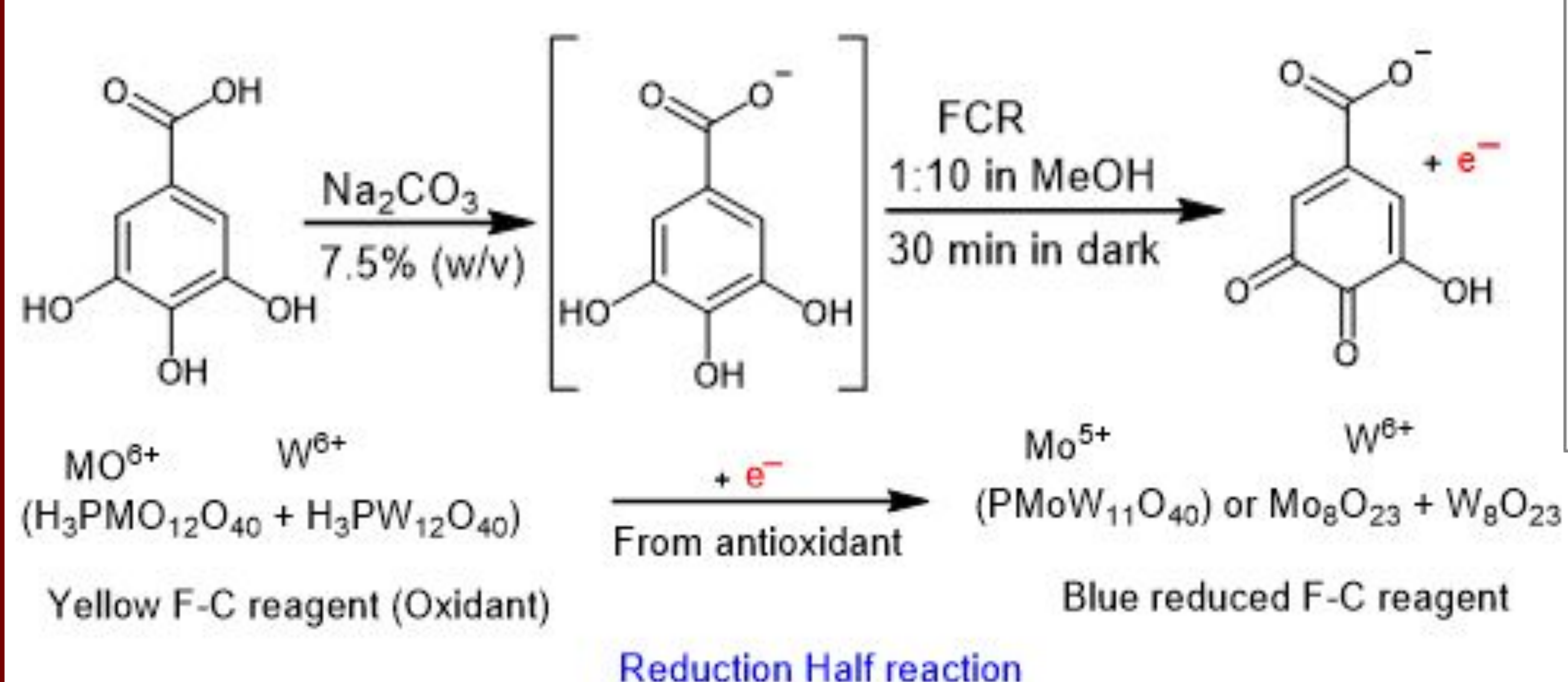
To assess how solvent polarity influences the phytochemical profile and antioxidant activity of *Acalypha wilkesiana* extracts.

EXTRACTION



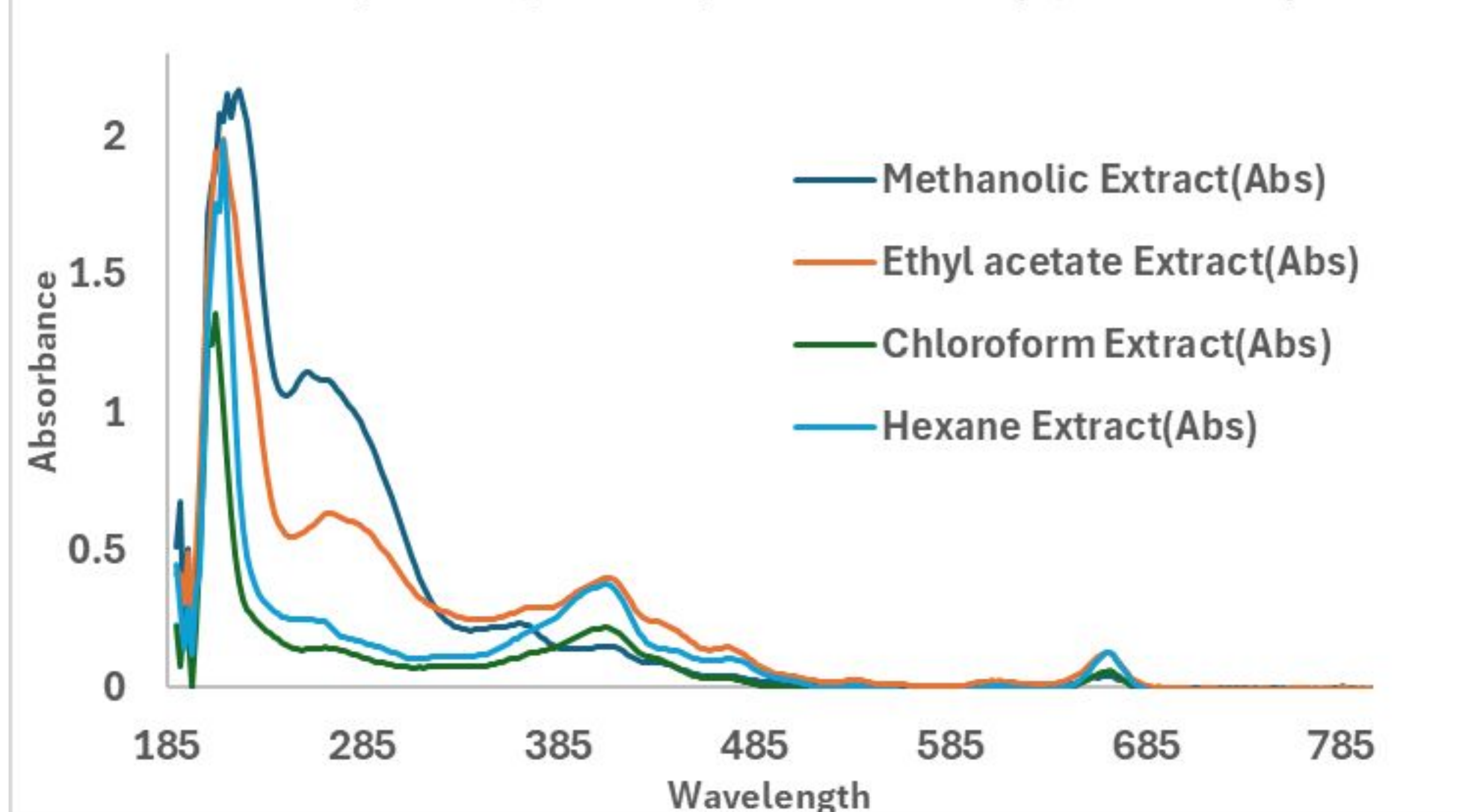
S/N	Fraction	% Yield
1	Methanol Extract	40.76
2	Ethyl Acetate Extract	1.63
3	Chloroform Extract	4.21
4	Hexane Extract	1.51

TOTAL PHENOLIC CONTENT



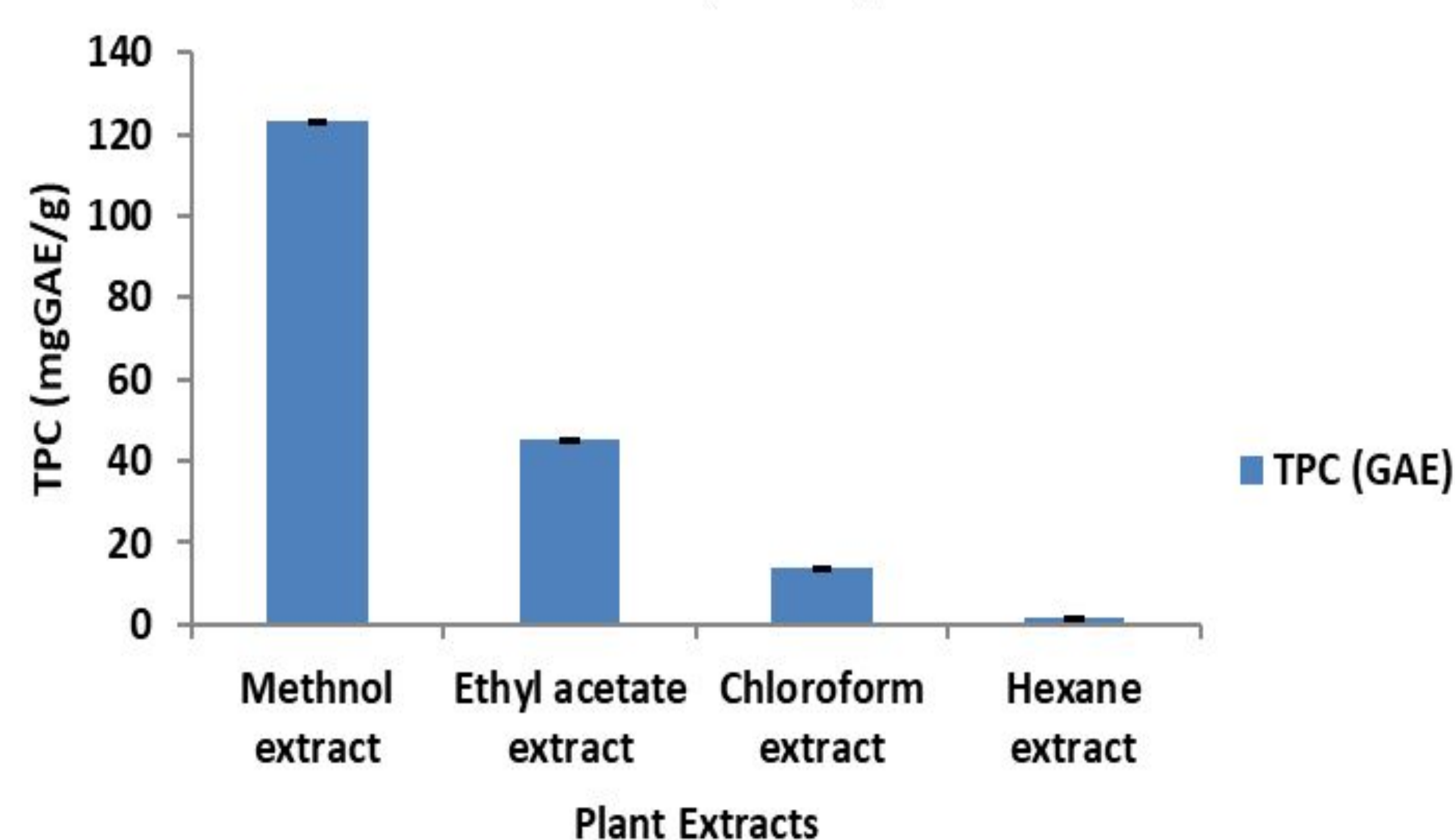
RESULTS & KEY COMPARISONS

UV-Vis profiling of the plant extract (Qualitative)

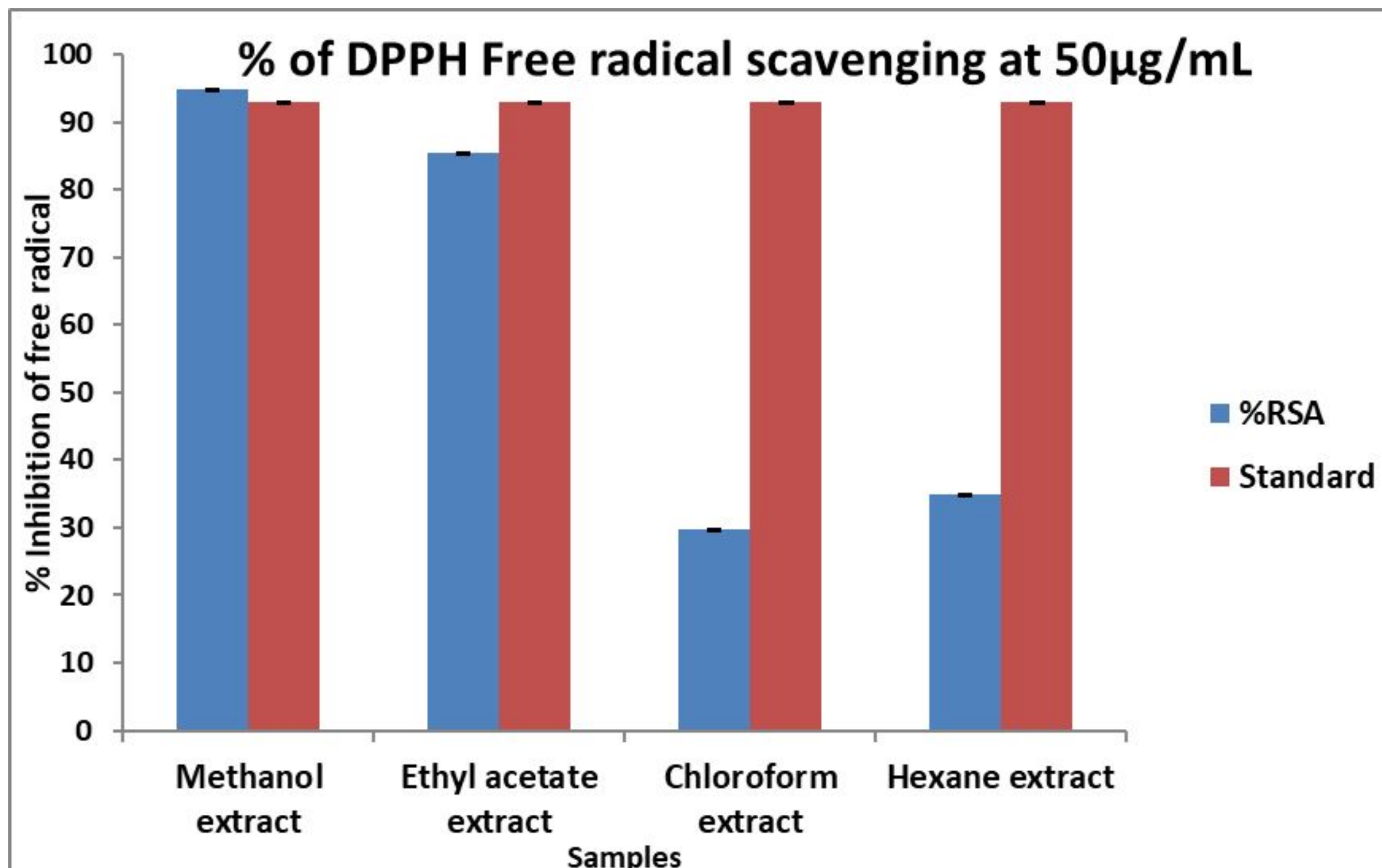


UV-Vis absorption spectrum of plant extracts using 4 different solvents.

TPC (GAE)

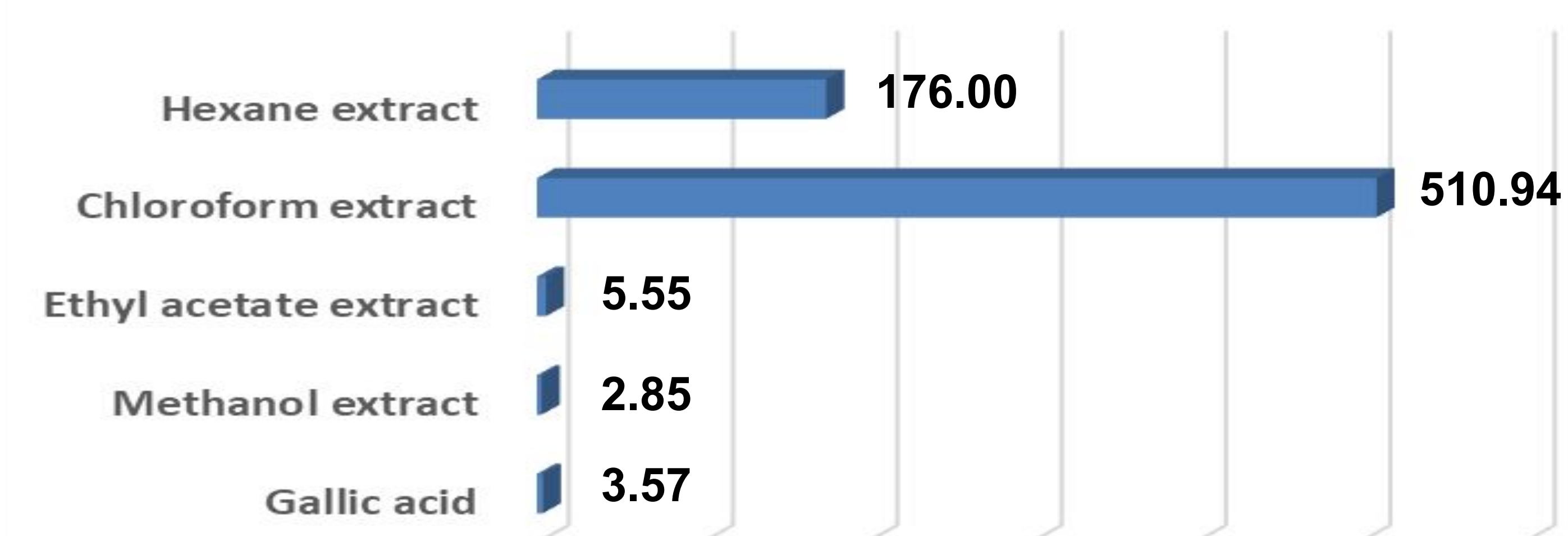


TPC of plant extracts expressed as mg GAE/g dry weight. determined using Folin Ciocalteu

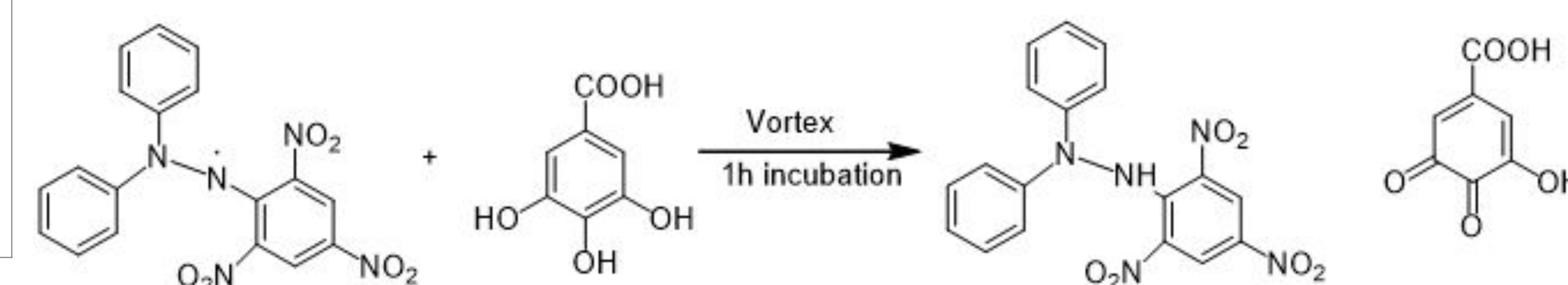


% inhibition of DDPH radical by 4 extracts vs. gallic acid standard (50ug/mL)

IC50 value



IC50 values of 4 plant extracts & gallic acid determined from DPPH radical scavenging assay



Assay: Radical scavenging, with absorbance @ 517nm [DPPH (2,2-diphenyl-1-picrylhydrazyl)]

SIGNIFICANCE

This work identifies the optimal solvent for phytochemical extraction, supports the discovery of natural antioxidants, and highlights potential applications in pharmaceutical and nutraceutical development.

CONCLUSION

- Extraction solvent significantly affects phytochemical composition
- Highest phenolic content extract showed highest antioxidant potential
- *Acalypha wilkesiana* is a promising natural antioxidant source

ACKNOWLEDGEMENTS

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