



EXTRACTION, CHARACTERIZATION, ANTIMICROBIAL AND ANTIOXIDANT POTENTIAL OF ESSENTIAL OIL FROM *Hyptis suaveolens* (L. Poit) LEAVES



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INTRODUCTION

Medicinal plants are reservoir of phytochemicals which serve as building blocks for the synthesis of chemo-pharmaceuticals. *Hyptis suaveolens* has been utilized in traditional medicine for its therapeutic properties. The current healthcare landscape faces numerous challenges including antibiotics resistance and oxidative stress-related diseases, necessitating alternative solutions that are effective, affordable, and sustainable.

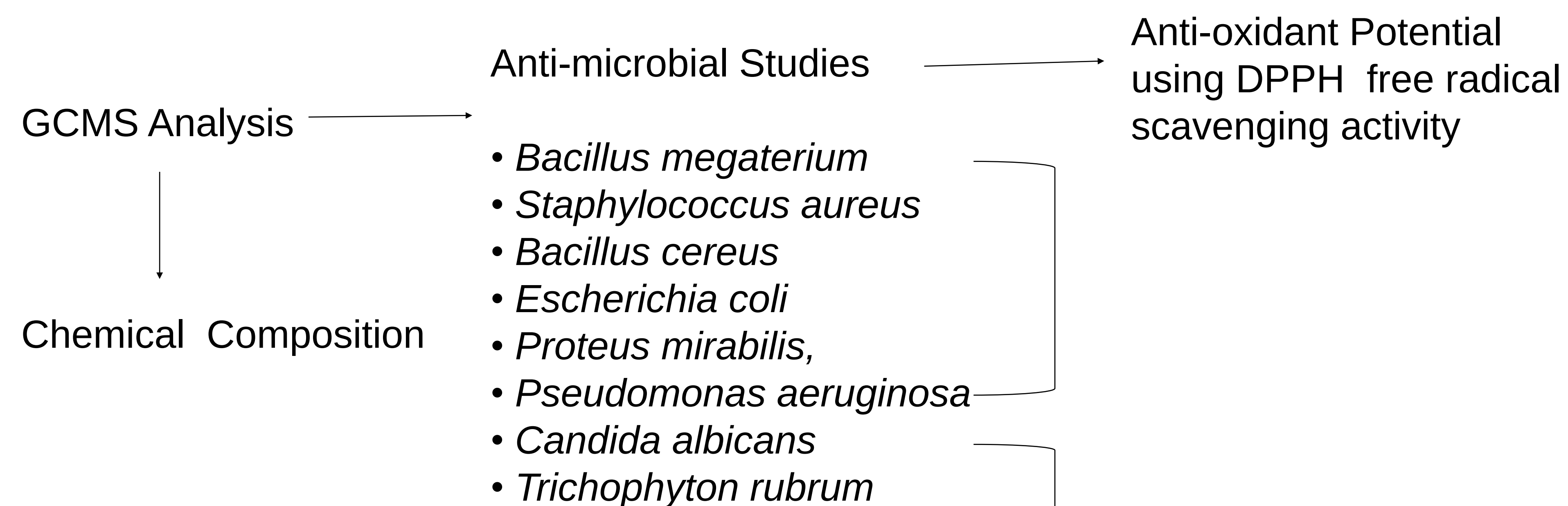
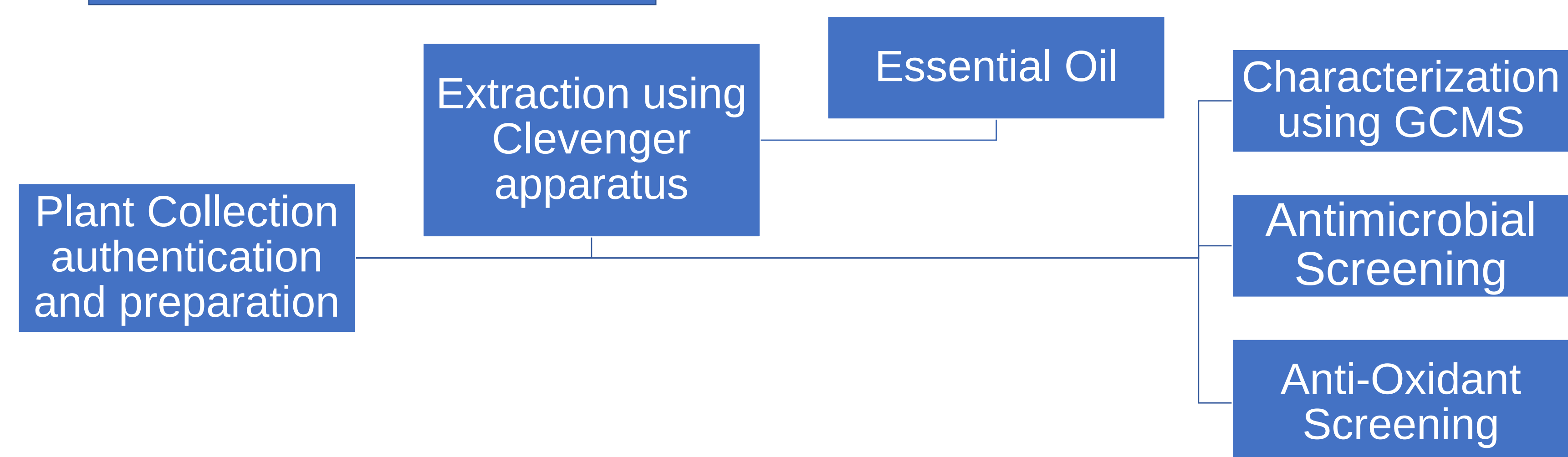
AIM

This research aimed to chemically characterize *Hyptis suaveolens* essential oil and evaluate its antimicrobial and antioxidants properties.



Figure 1: *Hyptis suaveolens* herb in it's natural environment

METHODOLOGY



- *Bacillus megaterium*
- *Staphylococcus aureus*
- *Bacillus cereus*
- *Escherichia coli*
- *Proteus mirabilis*,
- *Pseudomonas aeruginosa*
- *Candida albicans*
- *Trichophyton rubrum*

RESULTS

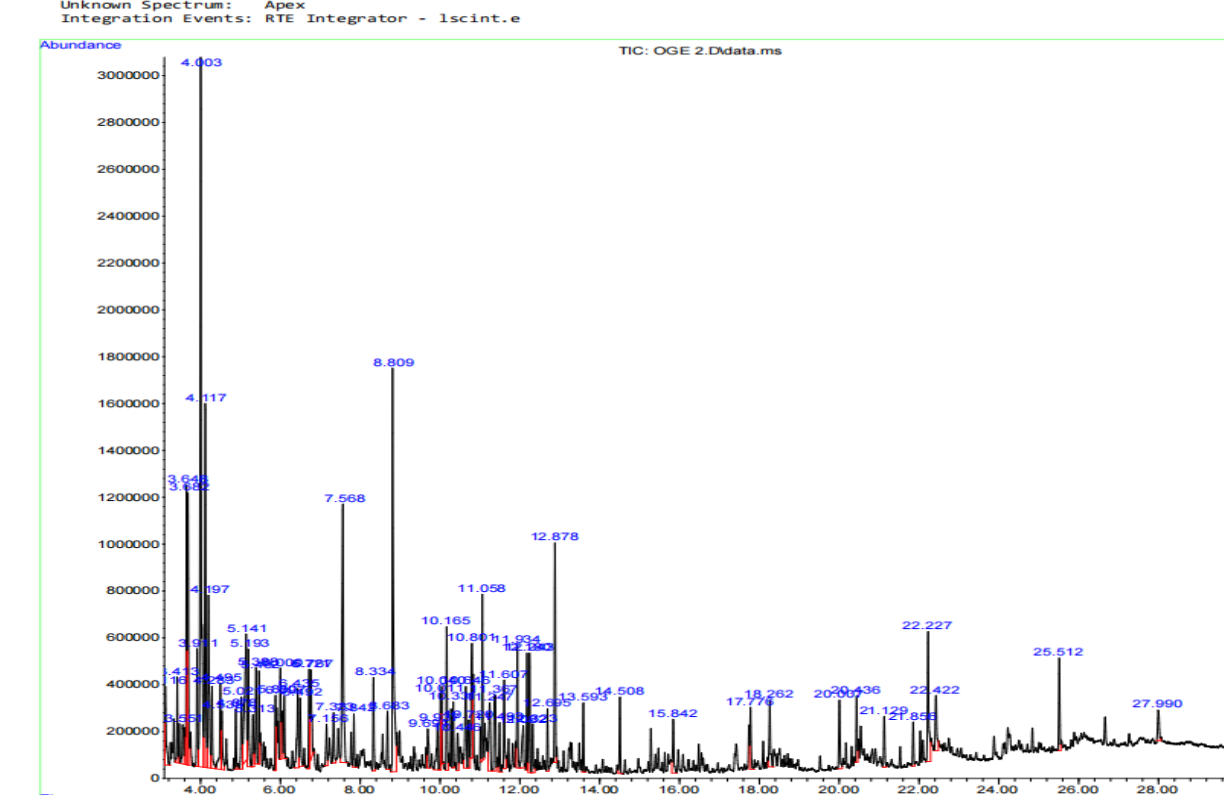


Figure 2: GC-MS chromatogram of Hyptis suaveolens leaf essential oil

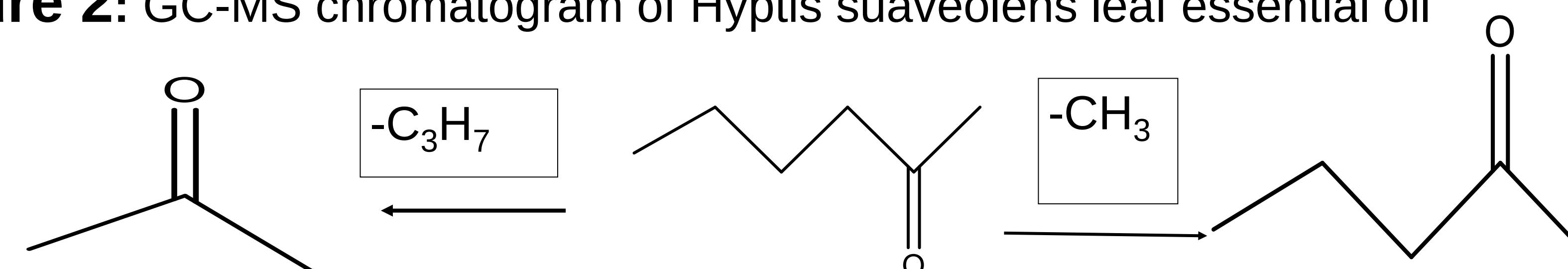
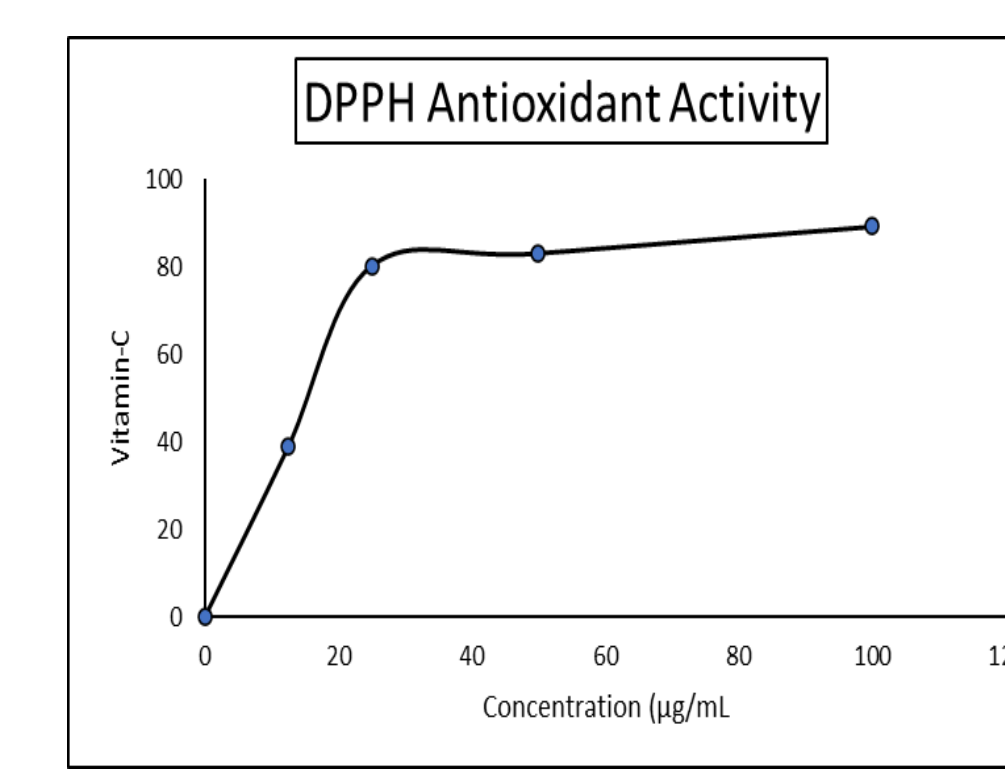
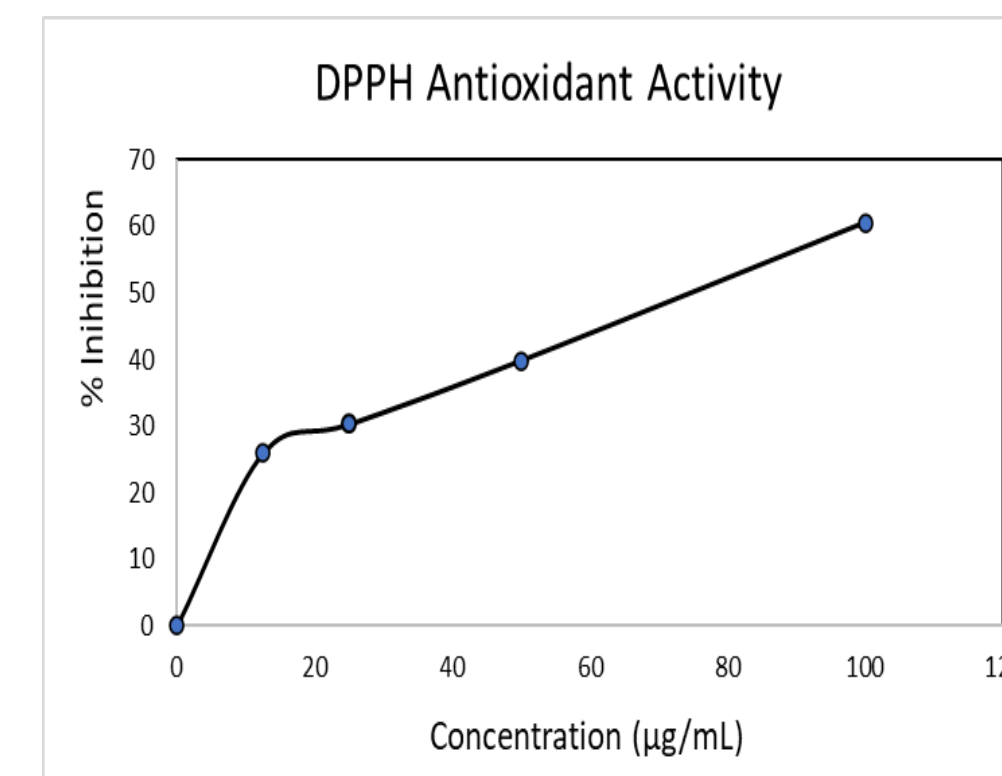


Figure 3: Fragmentation pattern of hexan-2-one

REFERENCES

Kumar, S., Kumar, V., and Sharma, S. (2022). Antioxidant activity of essential oils from medicinal plants using DPPH assay. *Journal of Essential Oil Research*, 34(3):259-267.

Conc (mg/mL)	B.megaterium (mm)	S.aureus (mm)	B.cereus (mm)	E.coli (mm)	P. aeruginosa (mm)	P. mirabilis (mm)	Candida albicans (mm)	Trichophyton rubrum (mm)
100	40.00	29.00	38.00	42.00	30.00	21.00	18.00	0.00
50	35.00	27.00	26.00	30.00	21.00	17.00	16.00	0.00
25	27.00	18.00	24.00	28.00	19.00	15.00	10.00	0.00
12.5	20.00	11.00	17.00	25.00	17.00	11.00	9.00	0.00
6.25	15.00	10.00	15.00	20.00	11.00	10.00	0.00	0.00
3.125	12.00	10.00	10.00	10.00	10.00	12.00	0.00	0.00
-ve	--	--	--	--	--	--	--	--
+ve	38.00	40.00	40.00	38.00	28.00	34.00	22.00	17.00

Table 1: Antimicrobial Result of *Hyptis suaveolens* against the bacteria and fungi strains

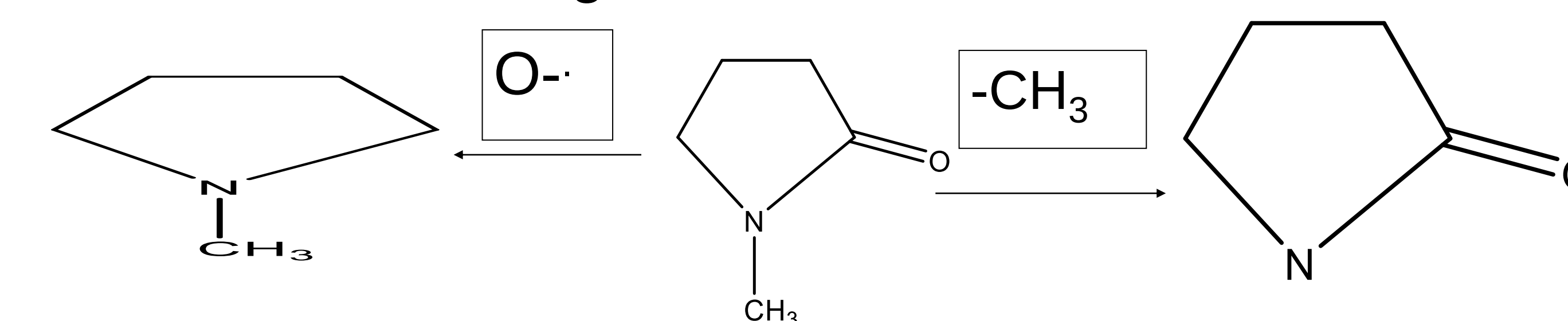


Figure 4: Fragmentation pattern of M-pyrrol

CONCLUSION

- The leaf essential oil of *Hyptis suaveolens* extracted by hydrodistillation was found to have a percentage yield of 0.60%.
- The GC-MS analysis of composition of the oil indicate that the two most abundant constituents are: Hexan-2-one and M-Pyrrol.
- The essential oil was also found to possess antimicrobial and antioxidant activities.
- The antimicrobial activity study revealed that the oil possesses more potent antibacterial activity on gram-positive bacterial than gram-negative ones. It also revealed the potency of the oil as antifungal agent.
- The *invitro* antioxidant study showed that the oil has the ability to scavenge DPPH free radicals and the percentage inhibition is directly proportional to the concentration of the essential oil