



Cymbopogon citratus; Chemotypical distribution and antibacterial assay along Lagos coastal areas in Nigeria

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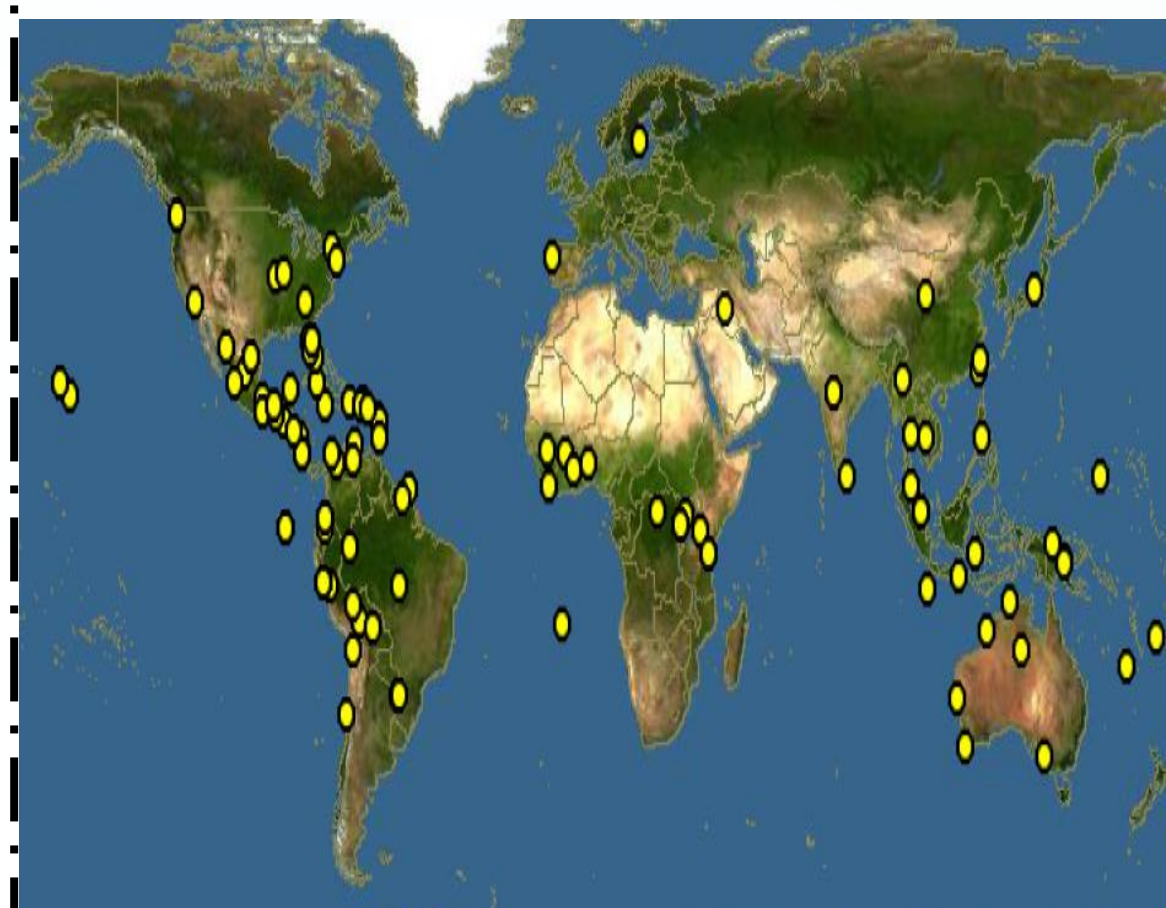
Aim

To establish the chemotypes of *C. citratus* in Lagos coastal areas by isolating the essentials oils, characterizing them using GC-MS, and evaluating their antimicrobial and antifungal effect.

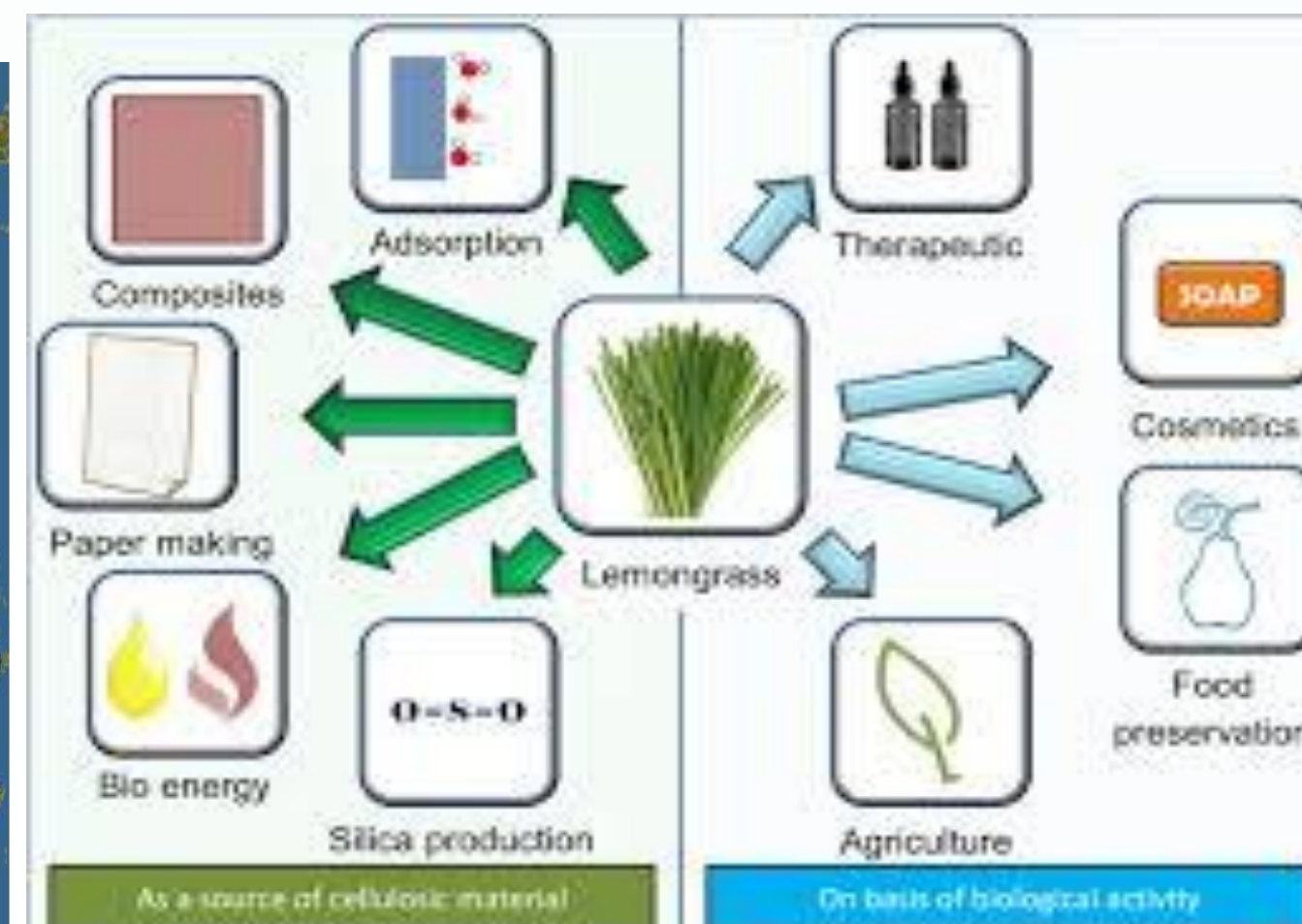
Introduction

C. citratus (Lemon grass) a member of the Gramineae family is an herb. It is a fast-growing, perennial aromatic grass native to South India and Sri Lanka, now widely distributed in the tropical and subtropical regions of Africa, Asia, and America.

Ethnobotanical uses includes for stomach upsets, malaria therapy, insect repellent, and an antioxidant¹.

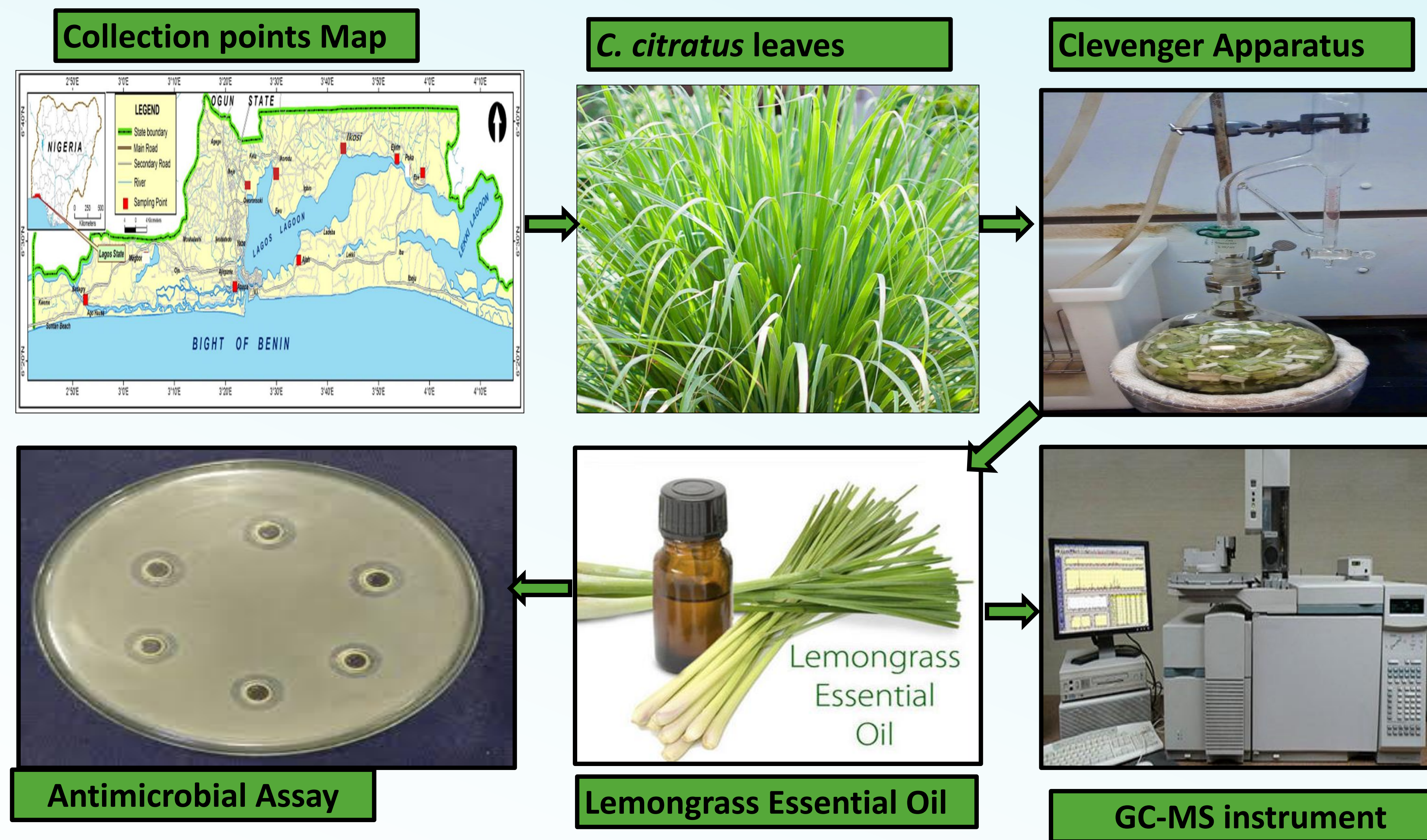


Distribution and uses of *C. citratus*



Methodology

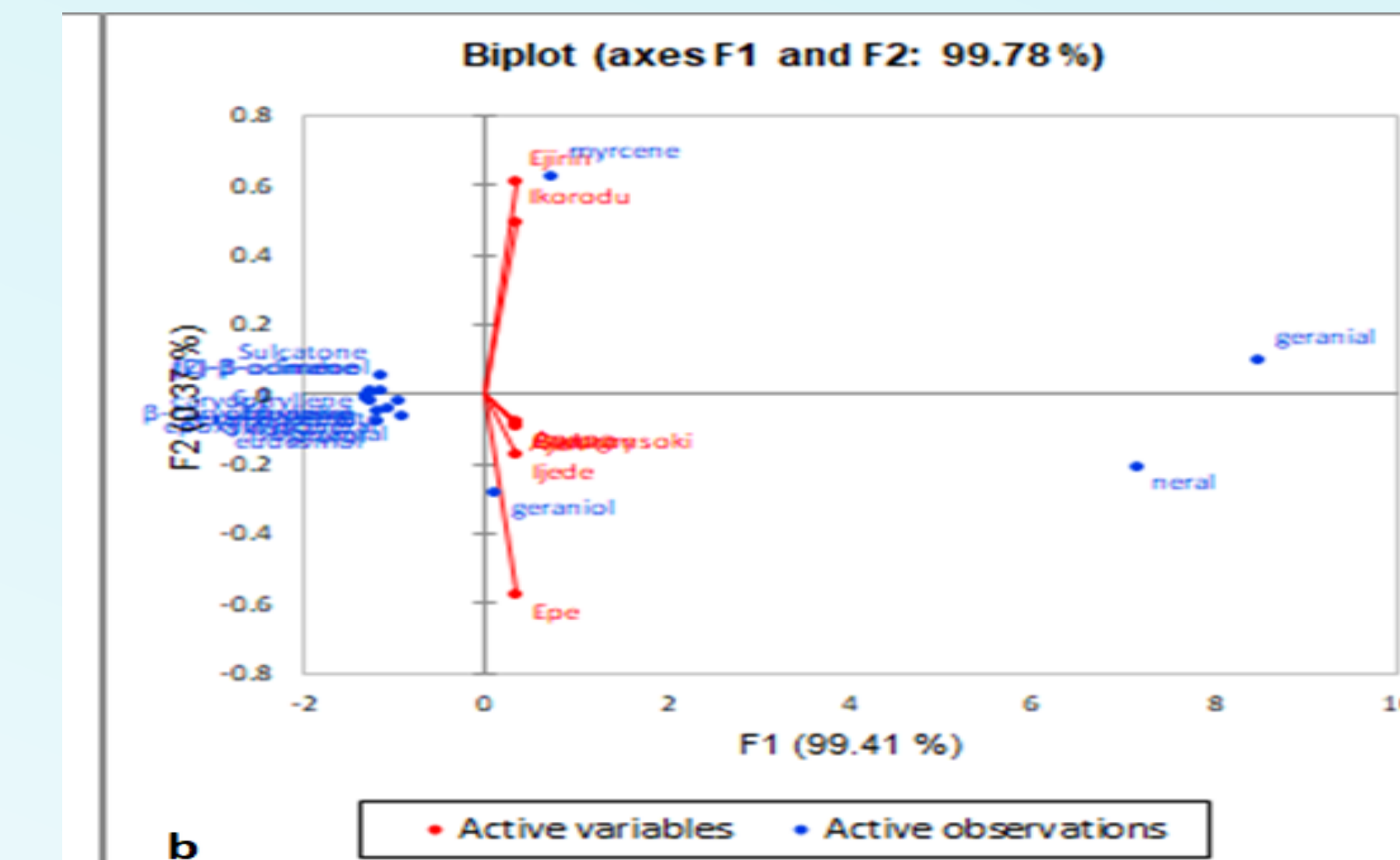
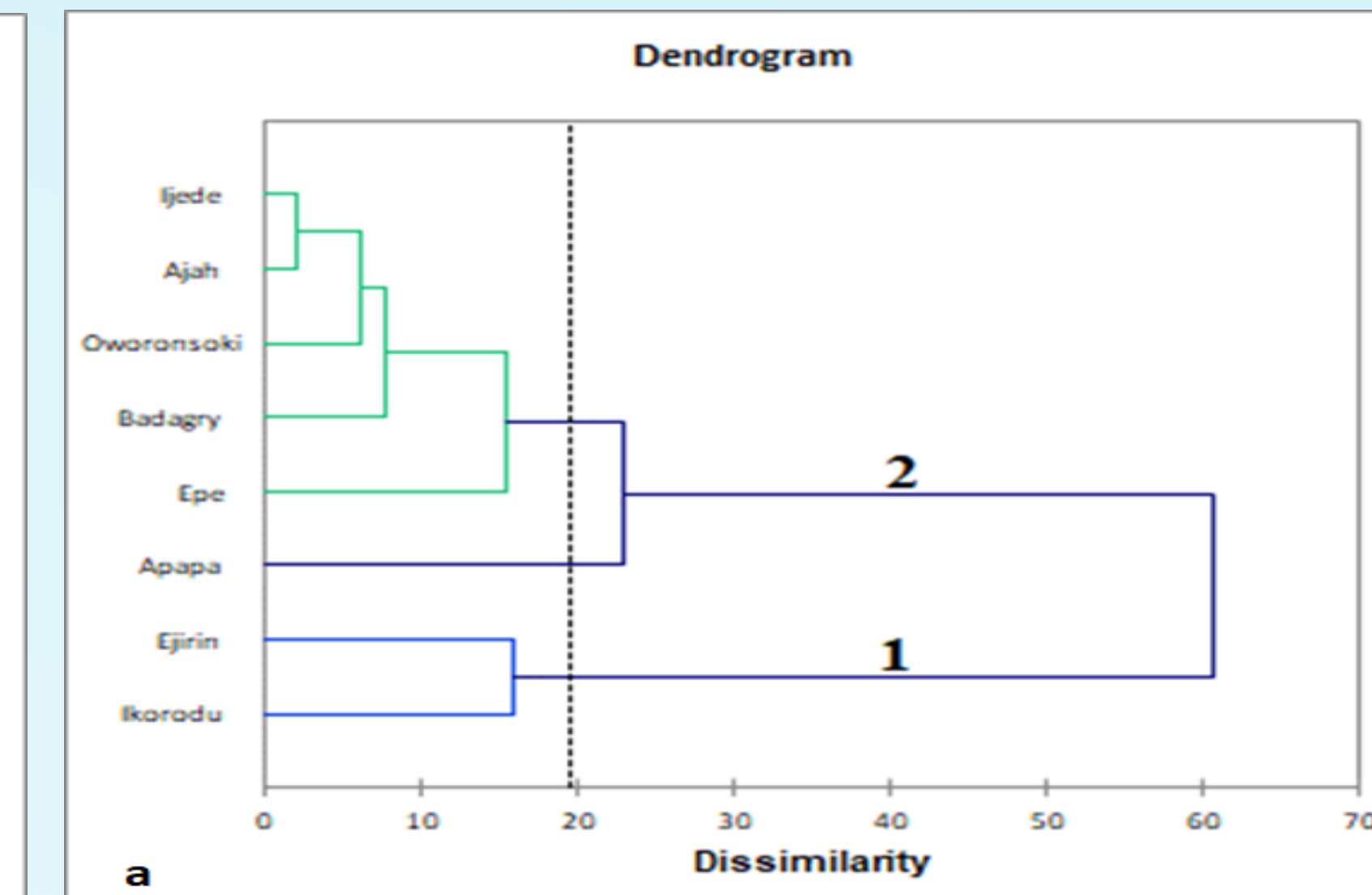
Leaves of *C. Citratus* growing in natural tropical environment were collected from 8 locations in Lagos State, Nigeria. Ajah(A1), Epe(A2), Badagry(A3), Ikorodu(A4) , Apapa(A5) ,Ijede(A6) ,Oworonsoki(A7) ,and Ejirin(A8) (**see map**).



The obtained oil was analyzed for antibacterial activities against Gram positive *Staphylococcus aureus* (ATCC: 25923) and *Bacillus subtilis* (ATCC: 14579), and the Gram negative bacteria *Escherichia coli* (ATCC: 25922) and *Pseudomonas fluorescens* (ATCC 27853)

Results

- The pale-yellowish oil has a very pleasant aromatic odour.
- High amount of neral, geranial and myrcene in all the oil samples.
- The dendrogram and the PC1 and PC2 reveals two main chemotypes; the neral and geranial from the 8 locations.



Dendrogram. (b) Principal component biplot of PC1 and PC2 indicating the chemotypes of *C. citratus*

Conclusion

- The E.O of *C. citratus* within Lagos tropical areas comprises of neral and geranial chemotypes.
- The EO inhibited the *E.coli* and *P.fluoresce* with MIC and MBC ranging between 9-12 mg/ml for all locations.
- The chemotypes are the same as reported by Avoseh²

References

- Aibinu I, et al (2007). *African Journal of Biotechnology*, 2, 185–190.
- Avoseh O.N. et. Al (2015). *Molecules* 2015, 20, 7438–7453