



Use of *Cymbopogon citratus* essential oil for control of *Sitophilus zeamais* and *Sitophilus oryzae* for protection of stored grains

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INTRODUCTION

- Post-harvest losses in grains crops and legumes is caused by several factors with insect attack being the greatest risk.
- Stored product insect pests are serious threat to food security because they cause great losses in quantity and quality of grains [1].
- Artificial pesticides used in controlling pest have inflicted significant damage on the environment, man and development of resistant insect strains.
- Pesticidal plant with bioactive compounds are alternative sources for insect pest management [2].

- *Cymbopogon citratus* essential oil also called Lemon grass essential oil (LEO) can be used for the control of *Sitophilus oryzae* and *Sitophilus zeamais*:
The primary insect attacking stored rice and maize.
- *Cymbopogon citratus* is a grass of the family poaceae grown across tropical and subtropical countries with bioactive compounds useful for the control of pest.



Figure 1: *Cymbopogon citratus* plant

THE CHALLENGE

- 220,000 Annual human unintentional death due to pesticide
- 2.2 million people suffer from infection due to pesticide poisoning exposure [1].

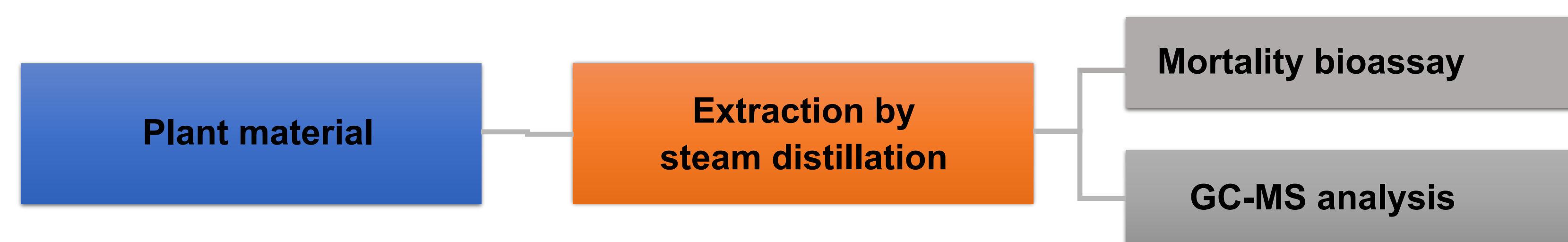
- 9-20% of stored products lost to insect attack annually.
- This is estimated at 13 million metric tons of grains

AIM

- To investigate the use *Cymbopogon citratus* essential oil for the control of *Sitophilus oryzae* and *Sitophilus zeamais* in stored grains.

METHODOLOGY

- *Cymbopogon citratus* was harvested from the botanical center calabar and identified by head of forestry unit
- The leaves were washed, shade-dried, pulverized and extracted by steam distillation



- 0, 1, 5 and 10% (v/v) solution of essential oil and acetone was prepared and tested against the insects

RESULTS

