

# INSECTICIDAL PROPERTIES OF *Melia volkensii* CRUDE EXTRACTS AGAINST SELECTED INSECT PESTS

Purity Muli<sup>1</sup>, Dr. Dora Kilalo<sup>1</sup>, Prof. Olubayo F<sup>1</sup>, Dr. Titus O. Magomere<sup>2</sup>, Prof. Guy Smagghe<sup>3</sup>, Stefaan Werbrouck<sup>4</sup>

<sup>1</sup>Department of Plant Science and Crop Protection, University of Nairobi, <sup>2</sup>Department of Biochemistry and Biotechnology, Kenyatta University,, <sup>3</sup>Department of Plants and Crops, Ghent University, <sup>4</sup>Department of Applied Biosciences, Ghent University

## Introduction

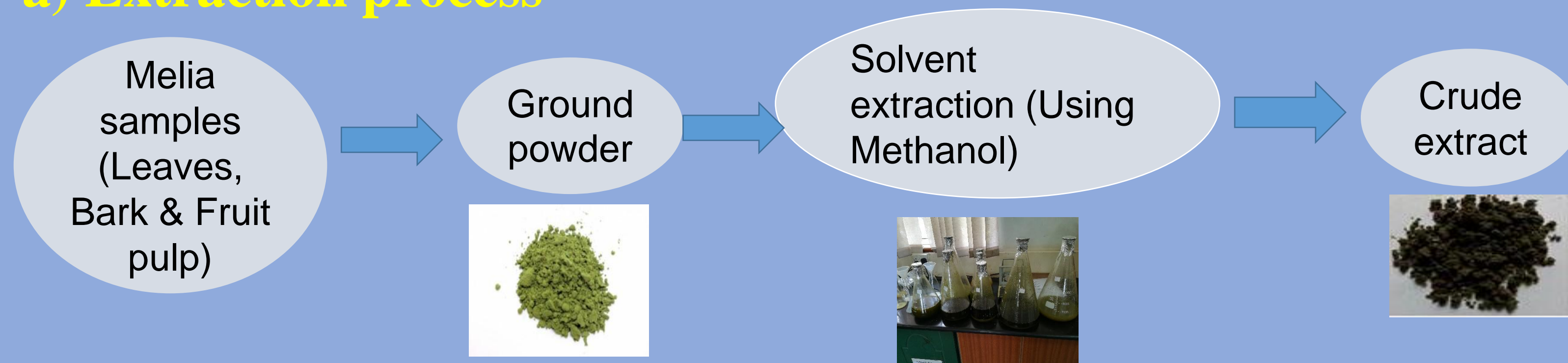
- Pesticides play an integral role in crop production
- To minimize the possible dangers caused by the synthetic pesticides, there is need to incorporate botanical pesticides in the pest management strategy
- Botanicals from plants in the genus *Melia* have insecticidal and antifeedent properties

## Research Objective

Screening *Melia volkensii* crude extracts from leaves, bark and fruit pulp against maize weevils, cowpea bruchids, cowpea aphids and fall armyworms, invitro.

## Materials & Methods

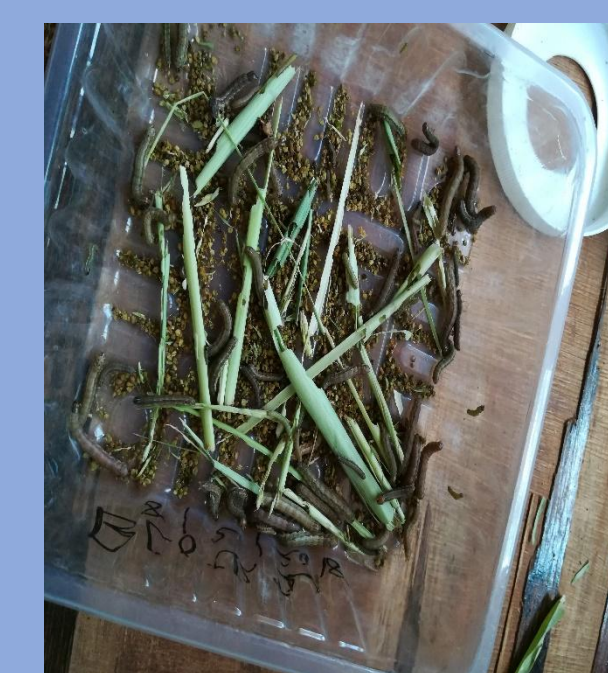
### a) Extraction process



### b) Experiments



Reared insects



Diluted extracts

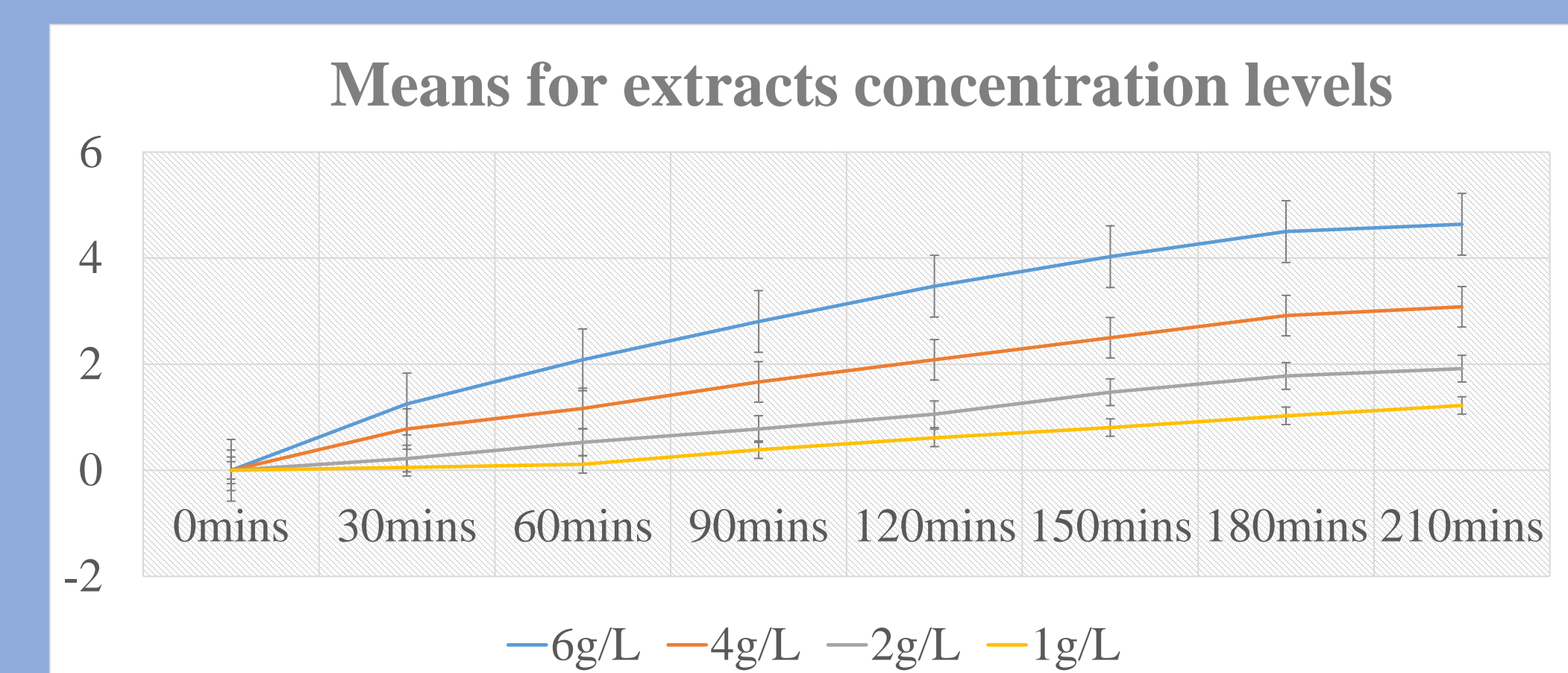
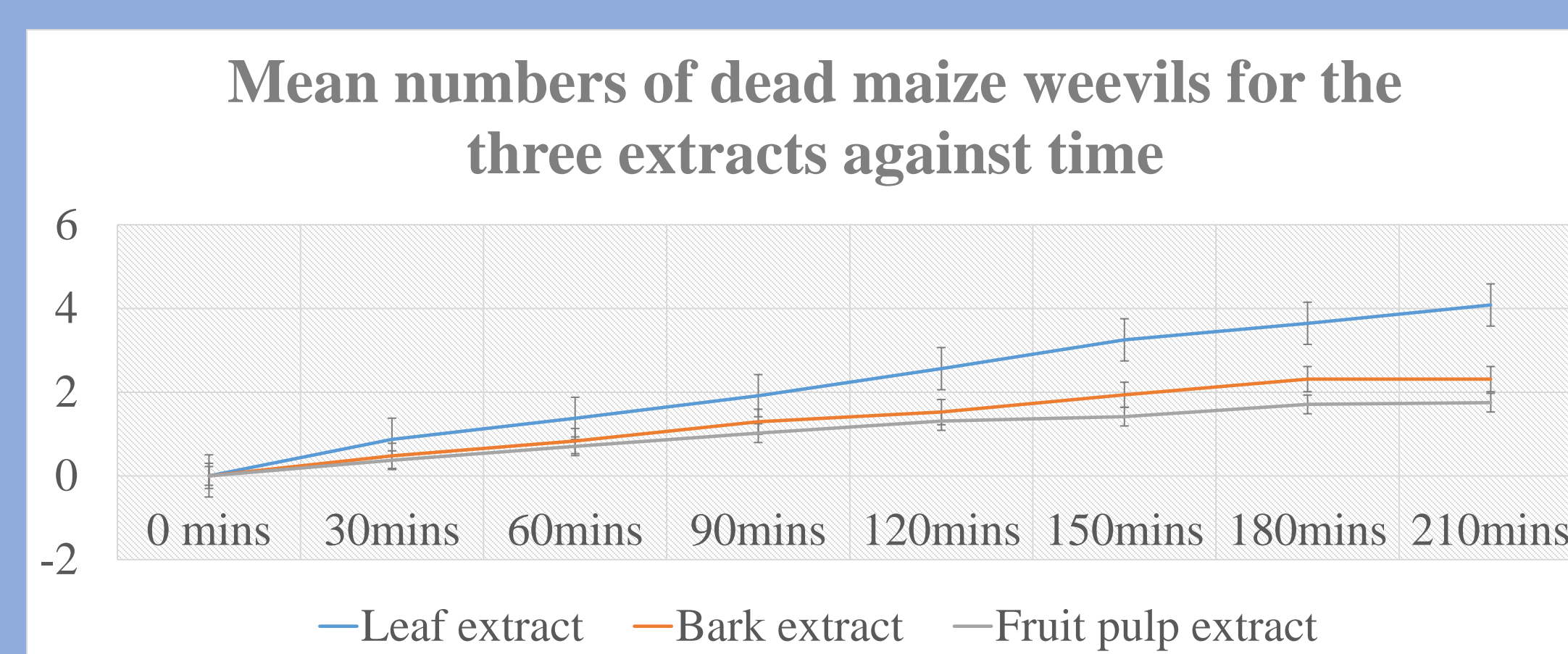
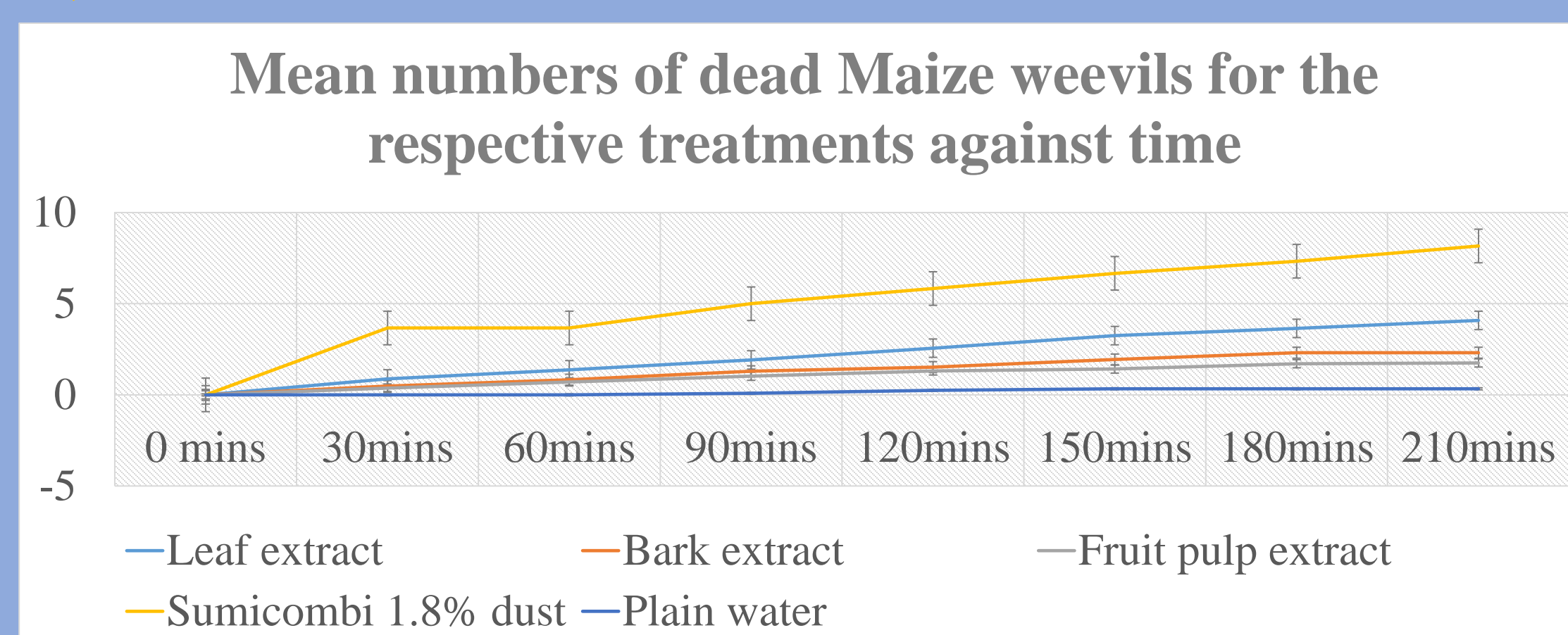


Topical application

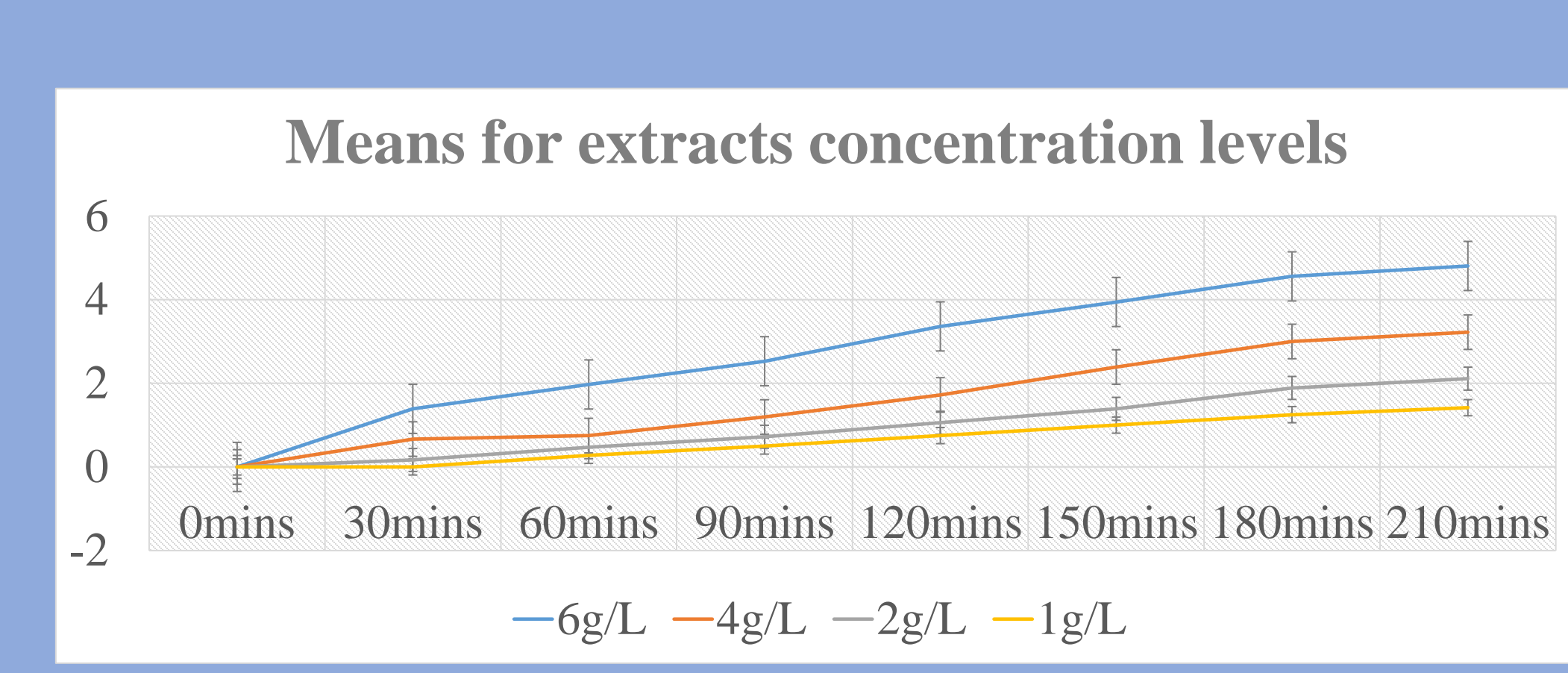
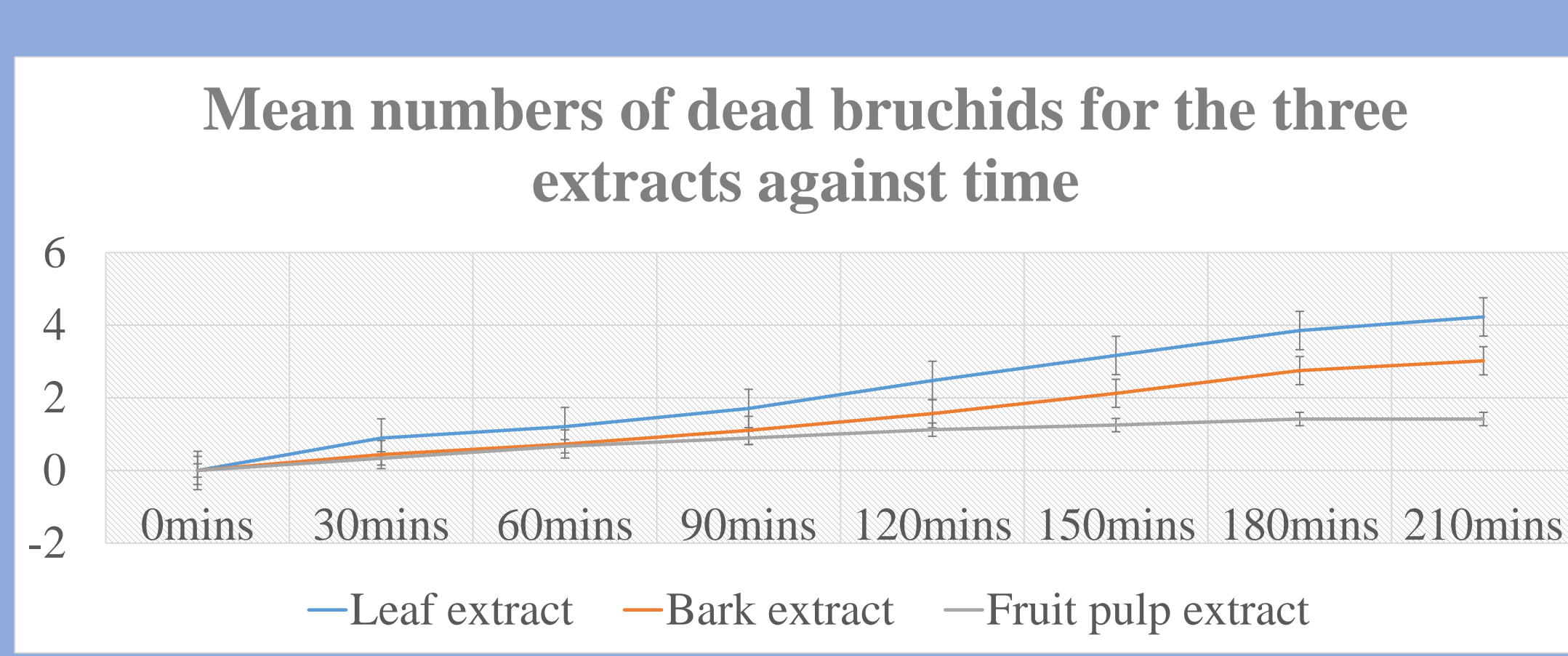
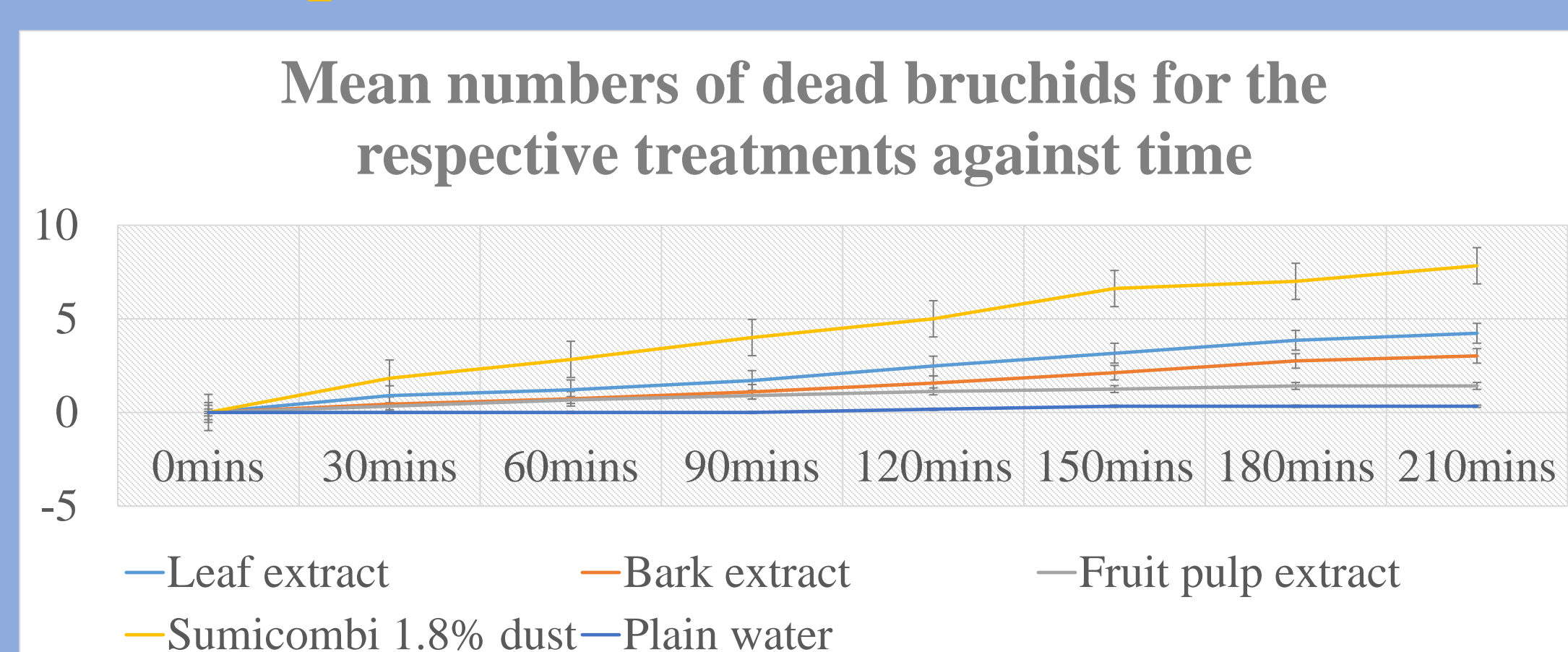
- Different concentrations (1g/L, 2g/L, 4g/L & 6g/L) of the extracts, with and without a surfactant were tested for insecticidal properties through dipping the test insects into the extract solutions and placing them in petri-dishes and by placing the test insects in extract-soaked serviettes, for observation.
- The experiment was laid as CRD using petri dishes and 10 insects were used for each replication.
- The efficacy of the extracts were compared to synthetic insecticides (*Fenitrothion*+ *Fenvalerate*; maize weevils & cowpea bruchids, *Lambda cyhalothrin*; cowpea aphids & *Emamectin benzoate*; Fall armyworms)
- Data was collected on the mortality and behaviours of the insects.

## Results

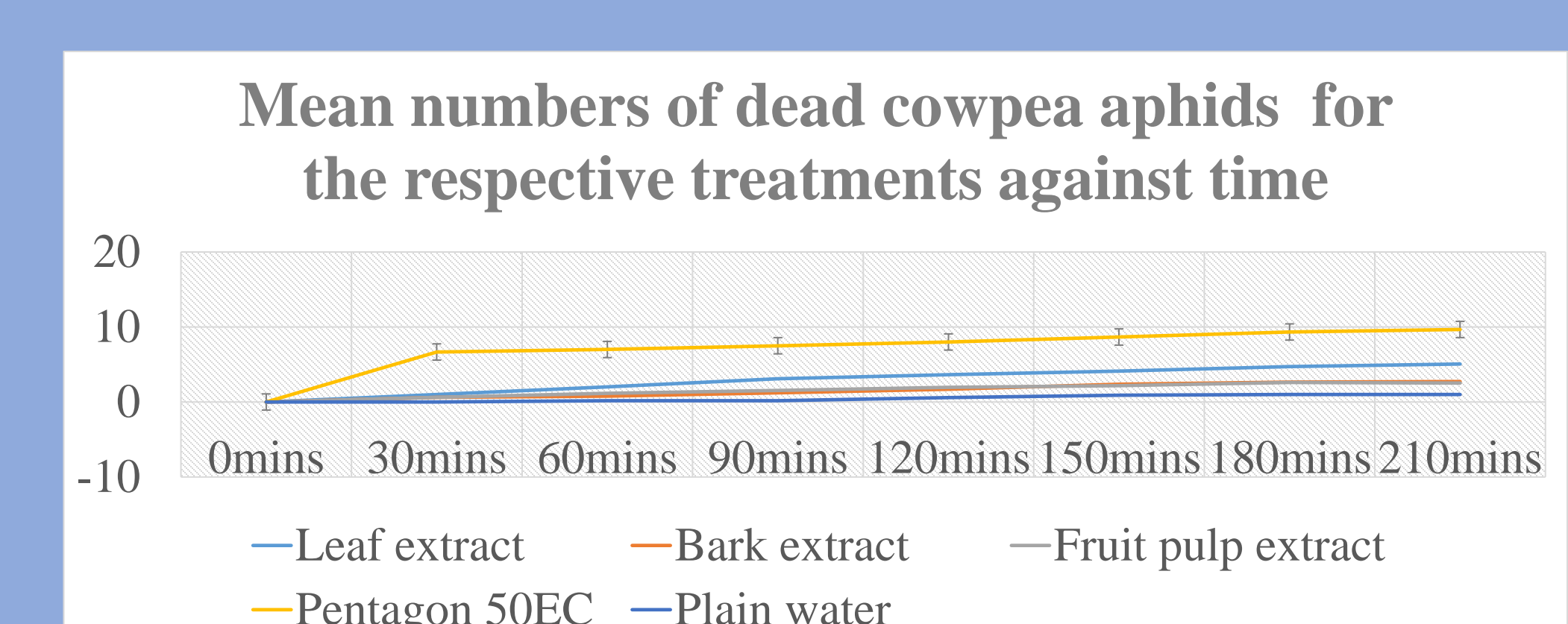
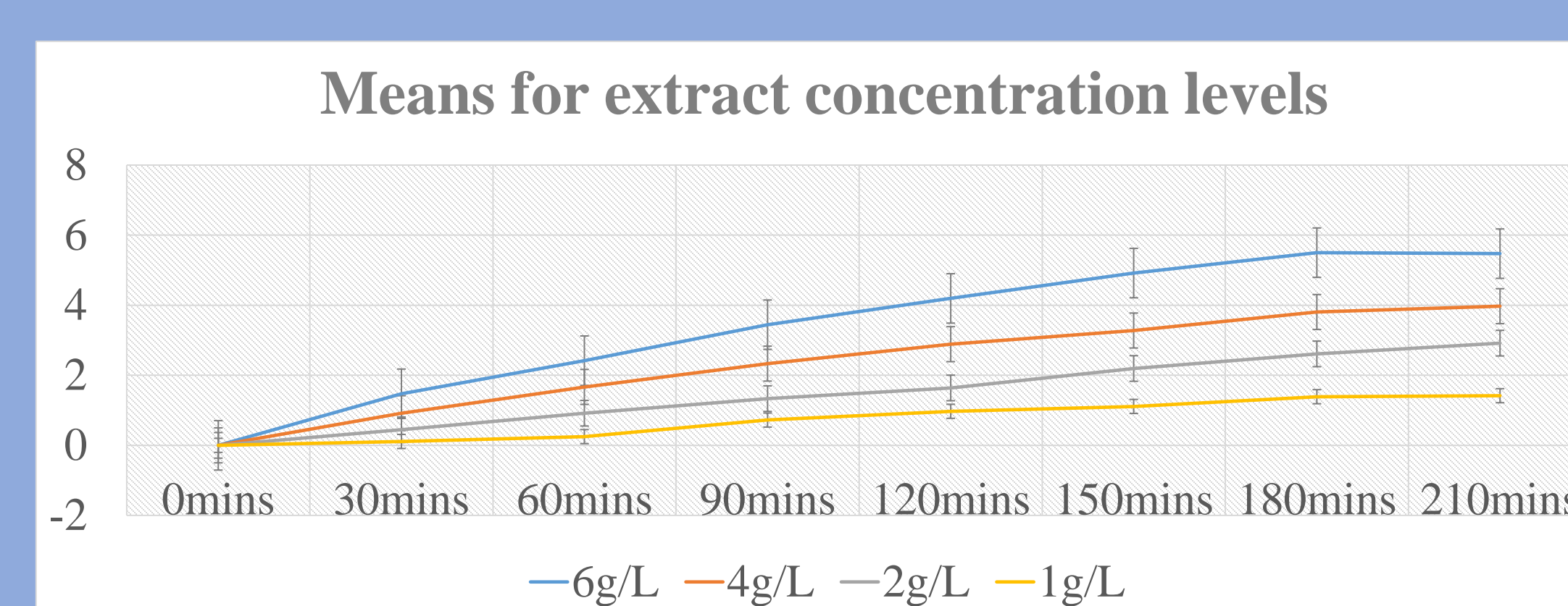
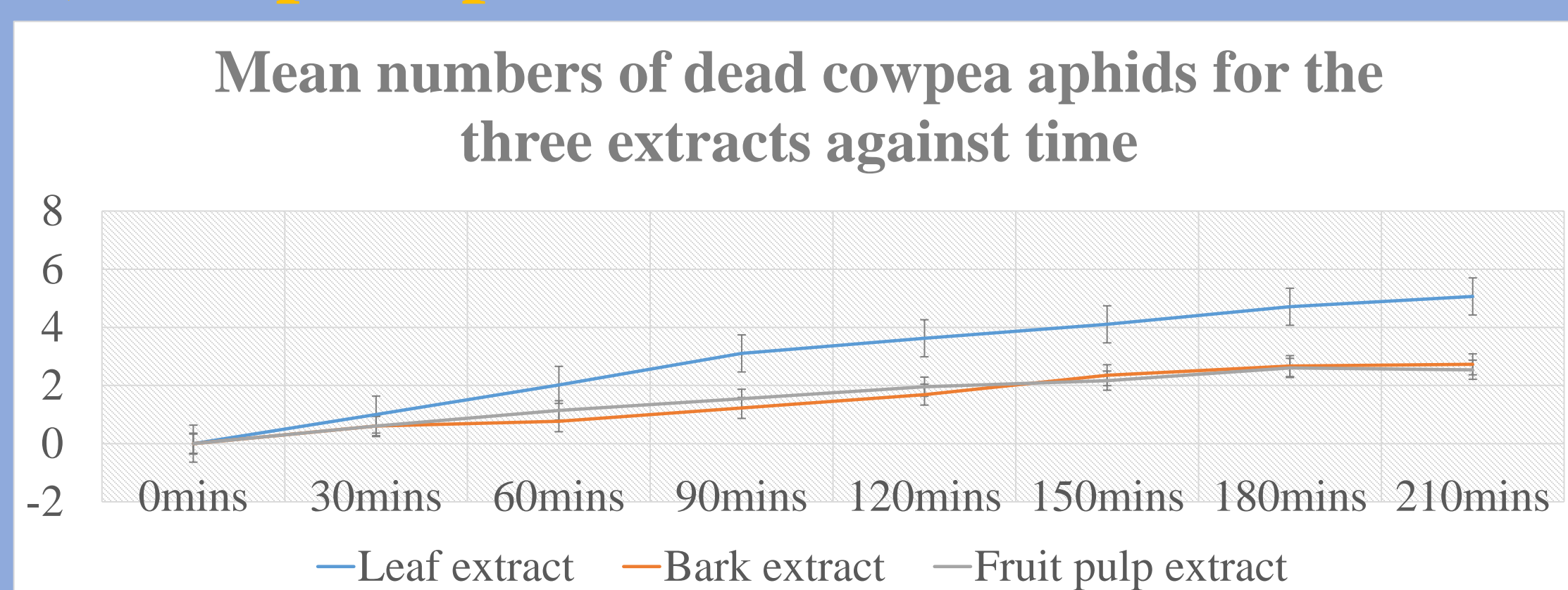
### a) Maize weevils



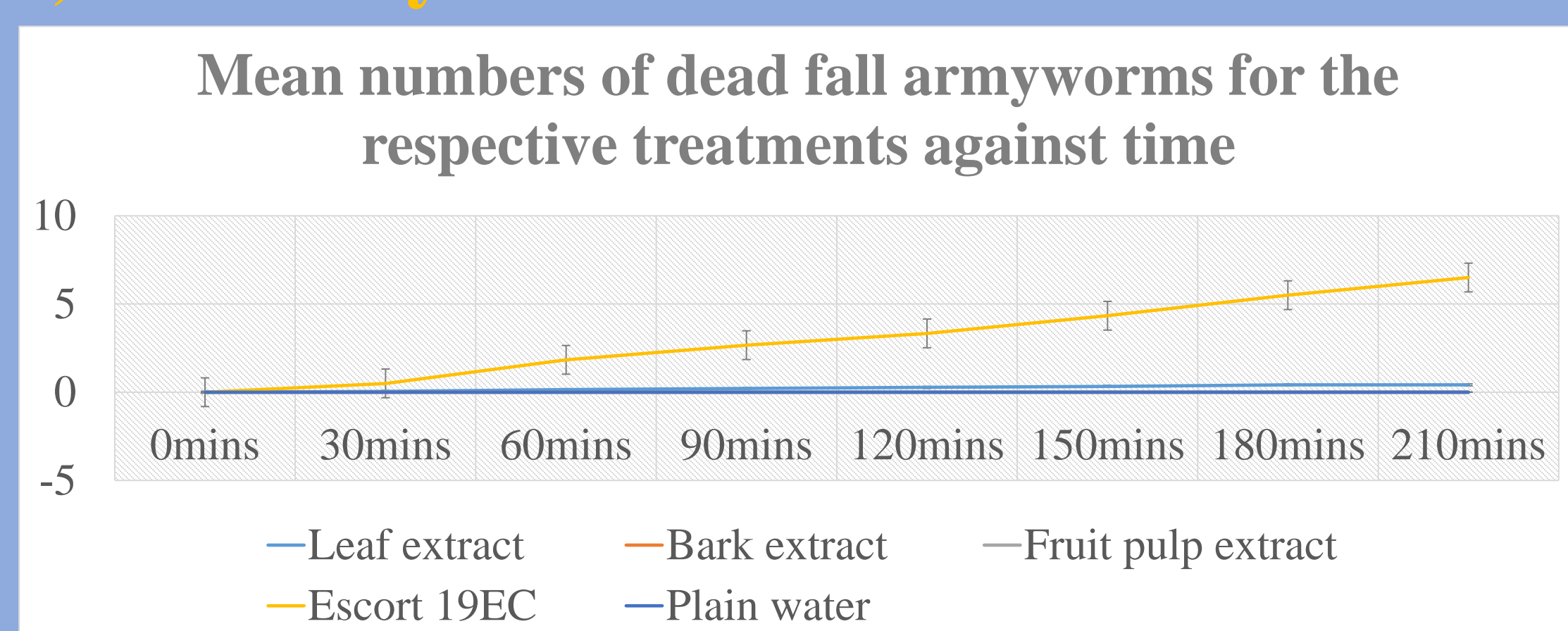
### b) Cowpea bruchids



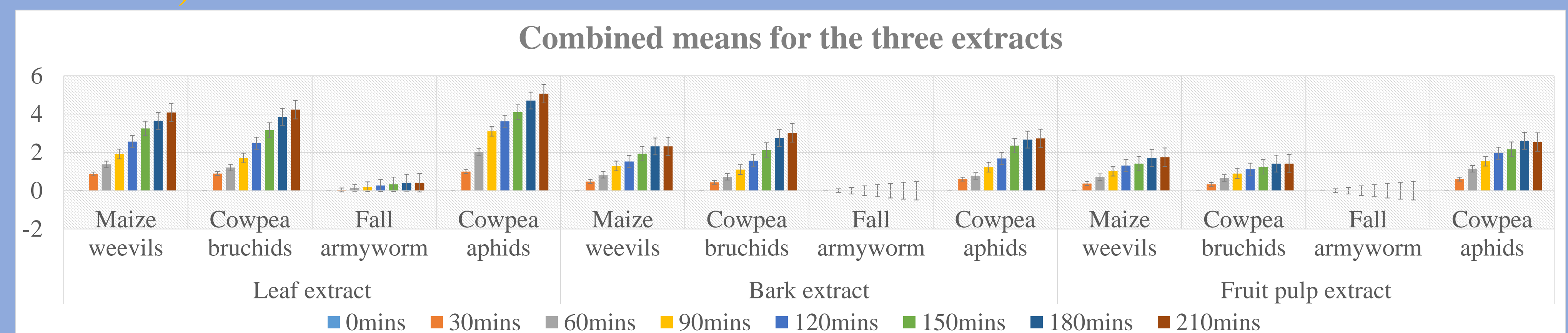
### c) Cowpea aphids



### d) Fall armyworms



### e) The 4 test insects



## Conclusion

- All the extracts had repellent properties and all insects showed partial paralysis, with some regaining consciousness and others dying after sometime.
- Insect mortality was observed at different concentrations over time, with the best concentration being 6g/L for all the crude extracts.
- The most affected insects were cowpea aphids.
- Extracts with a surfactant showed relatively higher insect mortality levels for all the extracts.
- There was no significant difference between the two methods of application used.