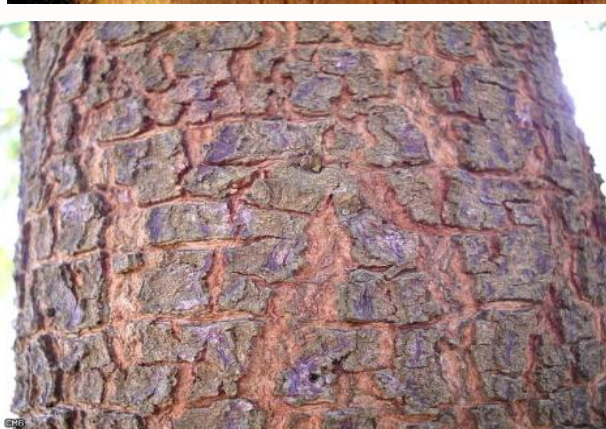


Save The Environment:

A study on extractives from the heartwood of neem
as possible termiticides

MERCY ADAGAYI

Azadirachta indica



- Modern day agriculture is faced with diverse challenges
- Food crops must compete with about 30,000 species of weeds, 3,000 species of worms, and 10,000 species of plant-eating insects
- With pesticides, these challenges were resolved to a great extent
- Increase in crop yield as crop quantity and quality depend on crop protection.
- Over dependence leads to misuse



Agrochemical Misuse

Environmental Degradation

Air pollution, water pollution, soil degradation, and ozone depletion

- ❑ Making conventional pesticides less toxic via encapsulation, slow release techniques and nano particles formulations
- ❑ Formulating ecofriendly biopesticides from readily available materials from plants.
 - ✓ Renewable
 - ✓ Low mammalian toxicity
 - ✓ Wild public acceptance
 - ✓ Inexpensive
 - ✓ Highly biodegradable
 - ✓ Less environmental effects
- ❑ Examples: Canola oil, hot chilli pepper sprays garlic, and neem extracts

Methods:

❑ Extraction

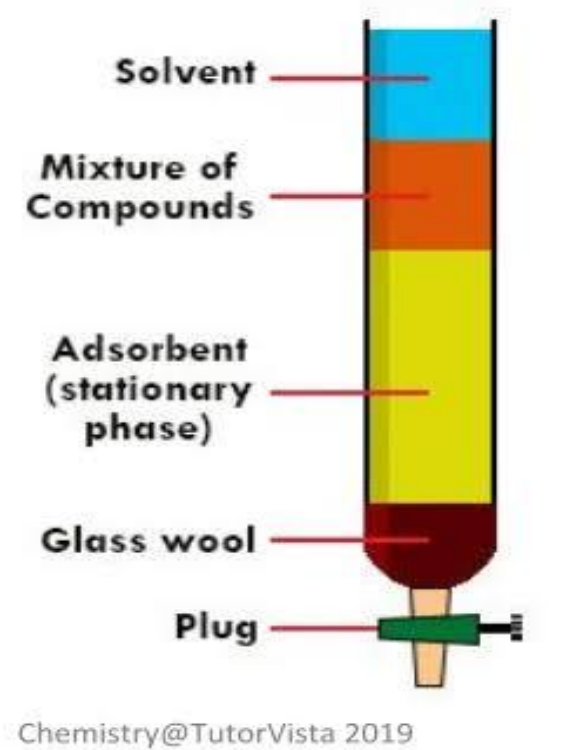
- Cold maceration method
- solvents used: n-hexane, ethylacetate, and methanol.
- Concentration of extracts using rotary evaporator

❑ Column Chromatography

➤ Isolated pure compounds (fractions)

➤ 96 fractions were obtained

➤ Exposure of fractions for evaporation



❑ Antimicrobial Screening

➤ 4 fractions and 3 crude extracts were screened for antimicrobial activities

➤ The fractions and extracts produced zone of inhibition against most of the test organisms

➤ Most of the test microbes were sensitive to the fractions and extracts

➤ Infections caused by test microbes that are sensitive and be treated with the fractions and extracts .

❑ Pesticidal Tests

❑ shredded portions of *Daniela oliveri* (white agba) was treated with different concentrations of the extracts

❑ 10 worker termites were introduced to the treated wood

❑ Insect mortality was noted via manual counting

❑ The 3 extracts proved to be toxic to worker termites over the exposure time

Conclusion:

❑ The extracts from the heartwood of neem possess termiticidal properties that can be used in the management and control of *Macrotermes sp.*

❑ Nigeria is endowed with *Azadirachta indica* and many other durable timber species; there is a need to study the chemical composition of their extractives and to carry out further research to determine if mixing of extractives from different durable tree species might improve their preservative potentials.

❑ The gains in planting more *Azadirachta indica* trees for the purpose of extracting the pesticidal fractions far outweigh the negative health effects and dangers of exposure to chemical termiticides.

❑ It is worthy to note that since only a minute amount is required, using extractives from neem heartwood as biopesticides is not only a sustainable venture but also an eco-friendly option which reduces environmental degradation and further ozone depletion from the misuse of chemical pesticides. These chemicals accounts for 1-4% of greenhouse gas emissions and this can worsen climate change.