Technical guide
2024 | SysCom Kenya

Preparation of home-made plant extract for pest management

For use by extension personnel and farmers

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The use of plant extracts in the management of cabbage (*Brassicas*) major pests

- Ninety percent (90%) of smallholder farmers in Kenya grow vegetables like cabbage and kales
- The major pests of brassicas include: Diamondback moth, Cabbage aphid
- The filtrate can be used to spray cabbage against various pests, such as the diamondback moth and the cabbage aphid

Diamondback moth adult

Damage caused by moth in the larval stage

Cabbage aphid

Damage caused by the adult and nymph stages

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Home-made botanicals (plant extracts) are liquid or powder preparations made from plant parts such as fruits, seeds, leaves, bulbs, or roots for the management of pests and diseases.

Why choose plant extracts?

- Readily available within farmers' ecosystems and contain phytochemicals with pesticidal activities
- Safer and less toxic to humans and beneficial insects
- Environmentally friendly and break down rapidly, reducing soil pollution while preserving soil microbes, fauna, and water quality
- Contain compounds that allow them to be integrated with other pests' management strategies with or without minimal impact on beneficial organisms
- Promote the ecological balance of macro- and microorganisms at the farm level

Resources needed for on-farm production of plant extracts

- Two portions of young fresh plant leaves/shoots of lantana and Mexican marigold each
- One portion of garlic, and chili each
- Half portion of neem powder
- Water, clean buckets, knife, chopping surface and sieving material

Procedure of preparing the plant extract

1. Sort and clean plant materials. Remove the parts of the plant material as described in next steps.

2. Take two portions of clean, freshly harvested Lantana leaves, cut the leaves into small pieces - put in a clean bucket.

3. Take two portions of clean fresh harvested marigold leaves, cut them into small pieces – add them in the bucket.

4. Take one portion of garlic bulbs, peel and cut them into small pieces or crush it into fine paste using a mortar and pestle or a clean piece of wood against a hard, clean surface.

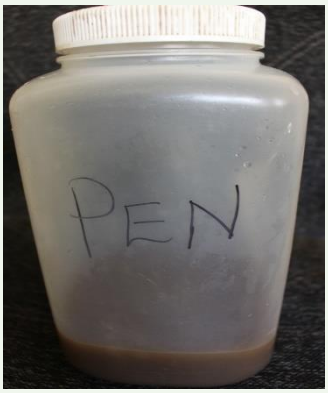
5. Take one portion of fresh chilli cut, pound or crush them into small pieces/a fine paste using the same tool as with garlic.

6. Use half portion of neemcake powder.

7. Mix all the materials in a clean bucket and add 15 litres of water.

8. Cover the bucket with a lid and leave it for 24 Hours. Afterward, sieve the filtrates using a fine cloth.

9. Add about a drop of liquid soap to the mixture and stir.



Points to note when using the plant extract

- **Application**: Apply plant extract using sprayers, ensuring thorough coverage of foliage, stems, and fruits
- **When to apply:** The plant extract should be applied in the evening to ensure maximum activity against the pests
- **Frequency of application** is determined after assessing the pest pressure or at the first sign of pest infestation. Application can be repeated based on the crop pest pressure and growth stages of the crop
- **Shelf life of the plant extract:** The activity of the plant extracts deteriorates rapidly, with a maximum storage period of 3 days
- **Mode of action:** The plant extract acts against the pests through contact, repellence and deterrence on feeding and egg-laying of the insect pests
- **Integration of the plant extracts with other IPM strategies:** Plant extracts can be incorporated into other integrated pest management (IPM) strategies, such as biological controls and cultural practices for most effective crop pest control

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