# NATURAL ANT REPELLENTS

## INTRODUCTION:

Ants are among the most common household pests, often invading kitchens and storage areas in search of food. While chemical pesticides are widely used to control ant infestations, they may pose risks to human health and the environment. As a result, there is growing interest in exploring natural, safe, and eco-friendly alternatives to repel ants effectively. Substances such as lemon, turmeric, coffee grounds, and salt are commonly available in households and are believed to have ant-repelling properties. This study aims to investigate and compare the effectiveness of these natural substances in repelling ants. By identifying the most effective natural ant repellent, this research not only promotes sustainable pest control methods but also encourages the use of safe household remedies over harmful chemicals.

## STATEMENT OF THE PROBLEM:

Ant infestations are a common household issue, and many people rely on chemical repellents that may be harmful to health and the environment. There is a need to identify safe, natural, and easily available alternatives to control ants effectively. This study seeks to investigate which natural substances—lemon, turmeric, coffee grounds, or salt—are most effective in repelling ants.

## RESEARCH QUESTION:

Which common natural substances (lemon, turmeric, coffee grounds, salt) repel ants most effectively?

**HYPOTHESIS** : Lemon juice will repel ants more than coffee grounds, turmeric, or salt.

## ABSTRACT:

Ant infestations are a common household problem, often controlled using chemical repellents that may have harmful effects on the environment and human health. This study investigates the effectiveness of natural substances-lemon juice, turmeric, coffee grounds, and salt-as ant repellents. The research question focuses on determining which of these readily available substances most effectively deters ants. The hypothesis predicts that lemon juice will repel ants more effectively than the other tested substances. Experiments involve applying each natural substance to an area where ants are present and observing their re. onse over time. The Experiments involve applying each natural substance to an area where ants are present and observing their response over time. The results will provide insight into eco-friendly alternatives to chemical repellents and promote the use of sustainable, safe, and natural methods for pest control.

This project investigates the effectiveness of natural substances—lemon, turmeric, coffee grounds, and salt—in repelling ants. Chemical pesticides are commonly used to control ants, but they can harm health and the environment. Natural alternatives are safer and eco-friendly. In this experiment, each substance was tested to see how well it could keep ants away. The

results will help identify which natural repellent works best, providing a simple and safe method to control ants at home.

**PROCEDURE:**

**Materials**

- Ants (from a safe outdoor colony) or access to ants in/near schoolyard
- Small shallow arena (cardboard or plastic tray) ~30×30 cm
- Two identical small food baits (sugar solution on cotton ball or small drop of honey)
- Filter papers or small squares of clean paper (5 cm x 5 cm)
- Natural repellents: fresh lemon juice, turmeric paste, dry coffee grounds, table salt
- Distilled water (for dilutions)
- Pipettes or dropp,, spoons salt
- Distilled water (for dilutions)
- Pipettes or droppers, spoons
- Stopwatch or phone timer
- Ruler, marker, notebook for recording
- Gloves, paper towels, tray to hold equipment.

**Experimental design (two-choice test)**

Each trial gives ants a choice between a side treated with a test repellent and an untreated control side.

Independent variable: Type of repellent (lemon, turmeric, coffee, salt, control).

Dependent variable: Number of ants that go to

the bait on each side in a fixed time. Control: One side with no repellent (just distilled water on paper).

Replicates: At least 5 replicate trials per repellent on different days and/or different colonies if available.

**Preparation**

1. Arena sides (Left / Right) are labelled and positions are marked for two baits equidistant from center.

2. A clean filter paper is placed on each side where bait will be.

For the test side,  the following repellents are applied:

Lemon: 0.5 mL fresh lemon juice on the paper.

Turmeric: thin smear of turmeric paste (~0.2 g). If paste is too thick, use 0.5 mL water + 0.2 g turmeric on paper.

Coffee grounds: ~0.5 g spread on paper.

Salt: ~0.5 g sprinkled on paper.

Control: 0.5 mL distilled water on paper.

3. Identical food bait (small sugar solution on cotton/honey drop) are placed on top of each filter paper.

**Procedure**

1. Put the arena near the ant trail or place a small number (5-10) of ants at the arena center (if you can ethically move them). Best to run trials where ants naturally find a small number (5-10) of ants at the arena center (if you can ethically move them). Best to run trials where ants naturally find the arena.

2. Timer is started as soon as ants can access both sides.

3. At 1 minute, 3 minutes, 5 minutes, and 10 minutes, how many ants are at/feeding on each bait (or in the 2 cm zone around the bait) is counted.  Counts are recorded

4. Ants are removed carefully after the trial and the arenabis cleaned thoroughly (so residue from previous repellent doesn't affect the next trial).

5. Steps 1-4 for all replicates are repeated.

**RESULT AND DATA:**

Experiment under process.