Title : Study on Ants

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Introduction

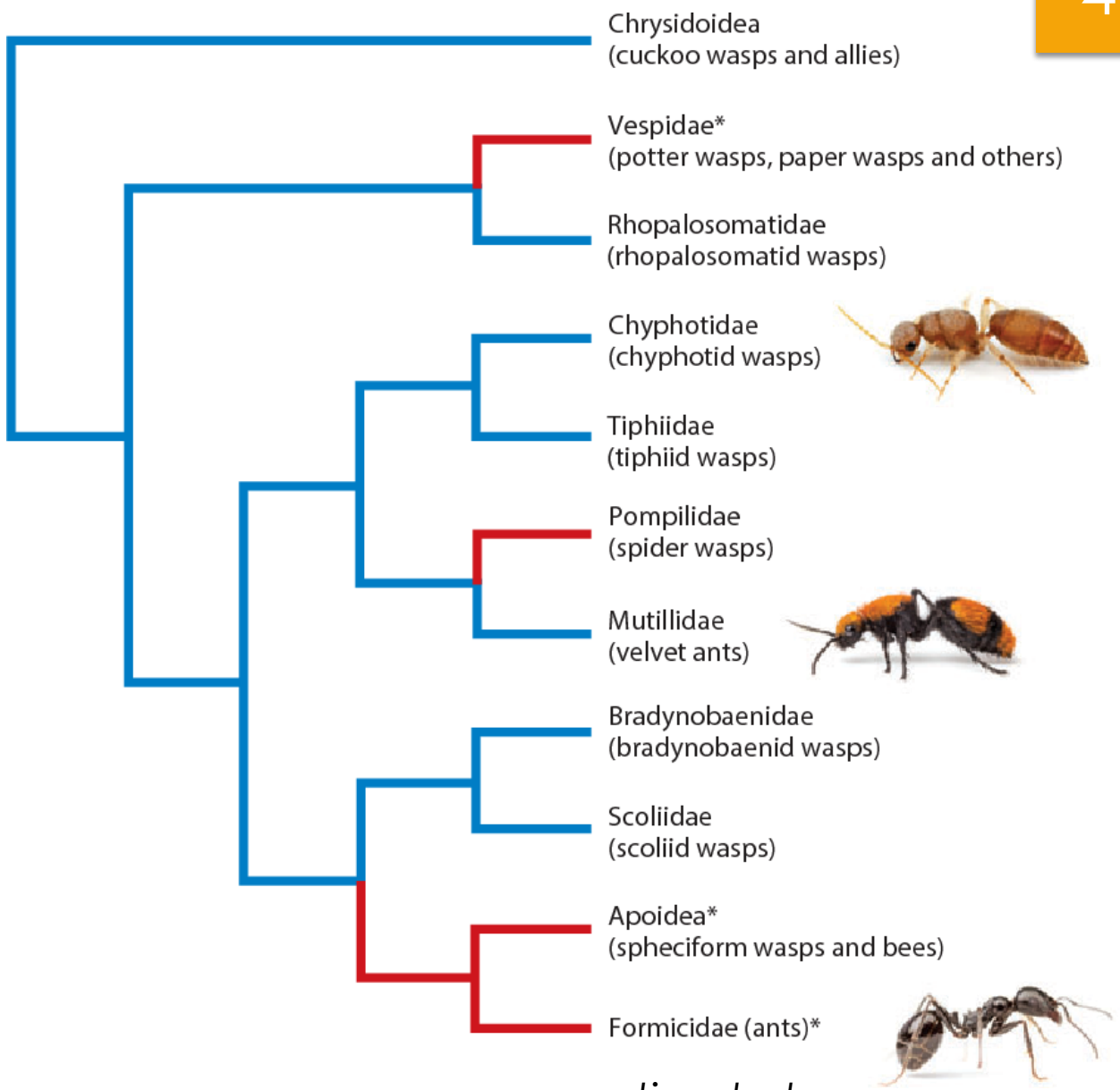
- **Ants** are eco-friendly, eusocial insects of the family Formicidae and belong to the order **Hymenoptera**.
- The zoological name of ant is "***FORMICIDAE***".
- More than 12,500 of an estimated total of 22,000 species have been classified.
- Ants are easily identified by their elbowed antennae and the distinctive node-like structure that forms their slender waists.

Scientific classification

Kingdom:	*Animalia*
Phylum:	*Arthropoda*
Class:	*Insecta*
Order:	*Hymenoptera*
Infraorder:	*Aculeata*
Superfamily:	*Formicoidea*
Family:	*Formicidae* *Latreille, 1809*

History or Evolution of ants

- Ants evolved from **vespoid wasp** ancestors in the Cretaceous period.
- More than 13,800 of an estimated total of 22,000 species have been classified.



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Objective

- Study and observation of ants' behaviour and habitats
- To make the society aware of the importance of ants to the environment
- To gain knowledge of natural environment of ants so as to protect and conserve their life

Materials and methods

- Google Earth – for marking area of study
- Internet – to know the general details of ants
- Mobile phone – for capturing pictures of observations

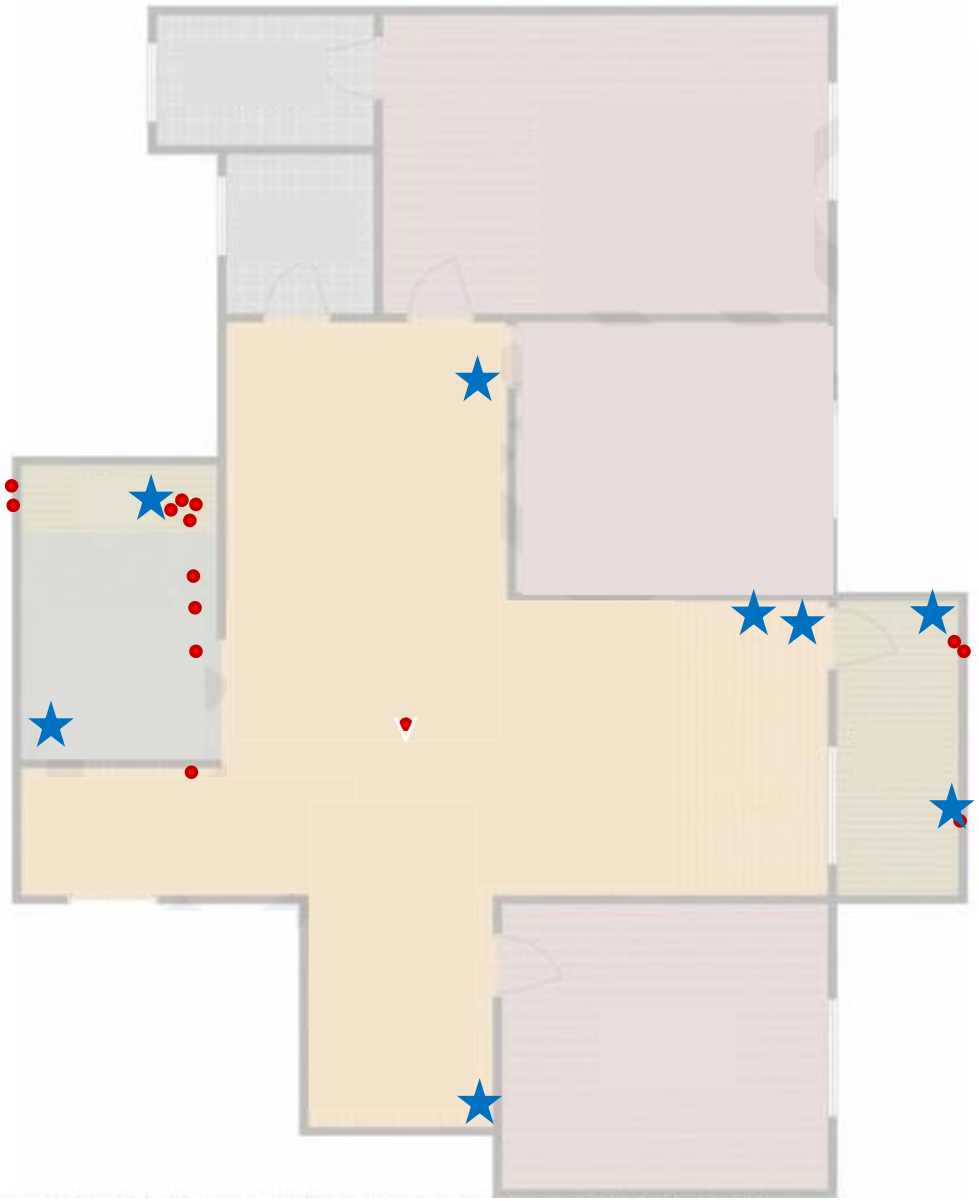
Study Area

My study area →

My house and my roof top and a part of the ground garden

(Situated in Hulimavu, south Bangalore)

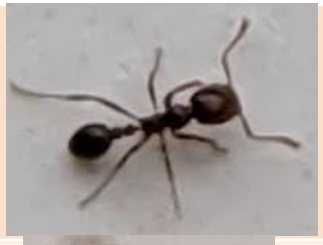
Map Spotting of ants



★ → Carpenter Ants

● → Odorous House Ants

The major kinds of ants I have noticed are:-

Sl. No.	Common Name	Scientific Name	Picture clicked by me
1.	Carpenter ants	*Camponotus*	
2.	Odorous house ants	*Tapinoma sessile*	
3	Pavement ants	*Tetramorium caespitum*	
4.	Fire ants	*Solenopsis*	

Other Species of ants noticed:-

Sl. No.	Common Name	Scientific Name	Number observed(approx.)	Common location of observation
1.	Odorous House Ants	*Tapinoma sessile*	50 approx.	Near sugary food items
2.	Carpenter ants	*Camponotus*	30 approx.	On barks of trees
3.	Pavement ants	*Tetramorium caespitum*	30 approx.	On open cemented ground
4.	Fire ants	*Solenopsis*	20 approx.	In dry, hot corners in any location
5.	White-footed ants	*Technomyrmex difficilis*	2	In a corner of kitchen
6.	Banded sugar ant	*Camponotus consobrinus*	15	Near undisturbed food particles
7.	Indian Black Ants	*Camponotus compressus*	40 approx.	Near a dead cockroach

Special Features

- Ants smell and taste everything (salty, bitter, tasteless etc.). If they feel that the item is something to eat, then they carry it with them or they leave the item and move away.

  Example, an ant smelling and tasting human nails, and then moving away.

- When ants are touched or killed, they don't feel any pain. Instead, they just have a feeling of irritation.

Ant Bites

- Ants are insects that defend themselves by biting with jaws and pinchers on their heads or stingers on their bottoms if they feel threatened by humans.
- Most ants are not a threat to humans. But some species(including fire ants)
- During an ant bite, the ant will grab your skin with its pinchers and release formic acid into your skin.

Prevention and Cures

- Treatment for ant bites and stings includes:
  - Applying ice to the bite to reduce swelling.
  - Taking ***antihistamines*** or a topical cream ***(hydrocortisone)*** to stop itching.
  - Taking ***acetaminophen*** to alleviate pain.
  - Taking ***corticosteroids*** for swelling.
  - Receiving an ***epinephrine*** injection for an allergic reaction.

Major Differences between dominant species of ants

Carpenter Ants

Colour: Black, red

Shape: Segmented, oval

Size: 1/4 – 3/4 inch long

Odorous House Ants

Colour: Black, brown

Shape: Segmented, oval

Size: 1/16 – 1/8 inch long

Fire Ants

Colour: Dark-reddish, brown

Shape: Segmented, oval

Size: 1/16 – 1/4 inch long

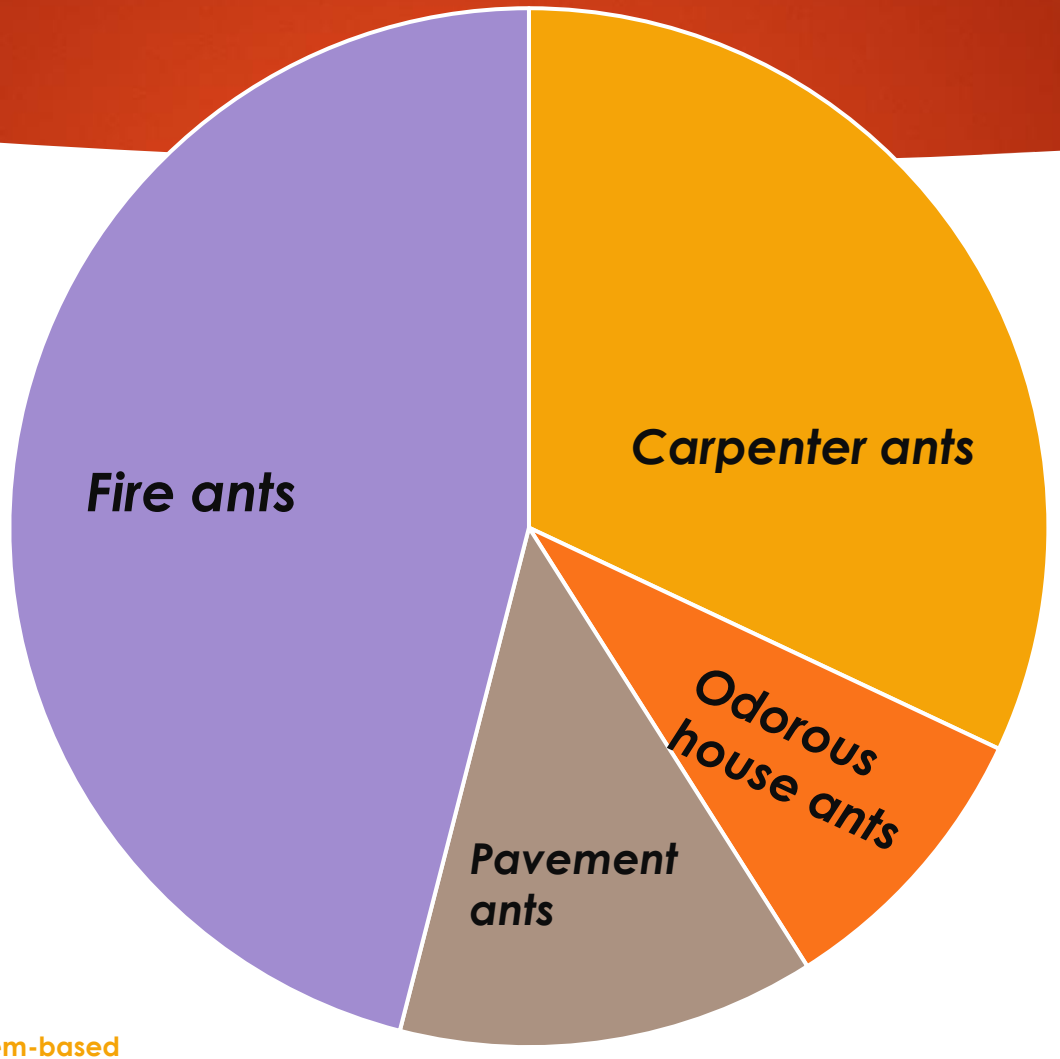
Smells that repel ants

There are some smells that ants don't like.

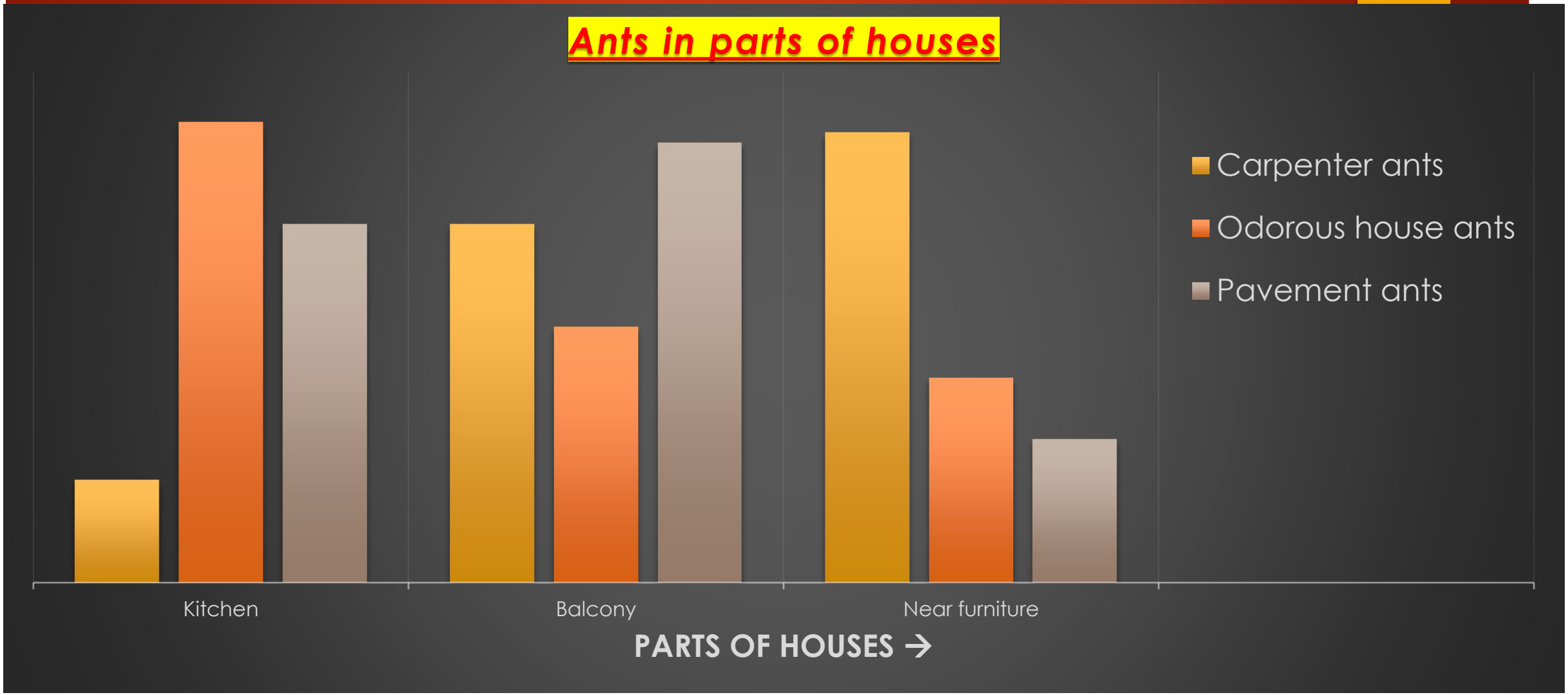
Some of them are-

- Peppermint
- Boric powder
- Cloves
- Cinnamons
- Eucalyptus oil

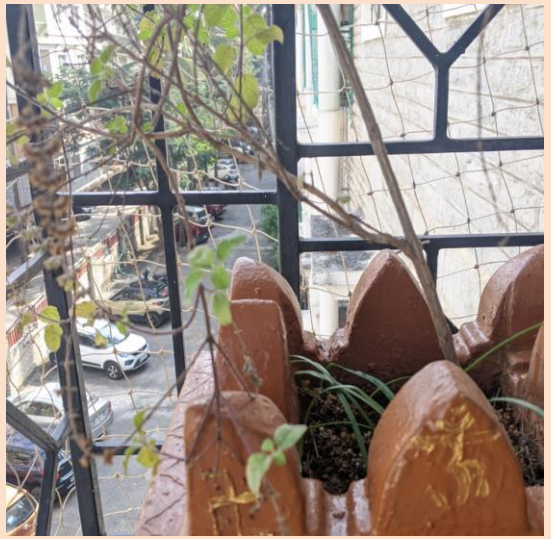
Repulsion of ants by vinegar solution



- Carpenter ants
- Odorous house ants
- Pavement ants
- Fire ants


Ants in parts of houses
Carpenter ants
Odorous house ants
Pavement ants
Kitchen
Balcony
Near furniture
PARTS OF HOUSES →
Ants →

My observation of my basil(tulsi) plant

Summer	Rainy(non summer)
	
❖ In non-summer days, the number of mealybugs in soil increases which attracts ants, which in turn help to improve yield and number of leaves in a basil plant	❖ In non-summer days, the number of mealybugs in soil decreases which reduces ant attraction, which in turn, gradually, decreases the yield and number of leaves in a basil plant

These observations lre made in regard to odorous house ants(Tapinoma sessile)

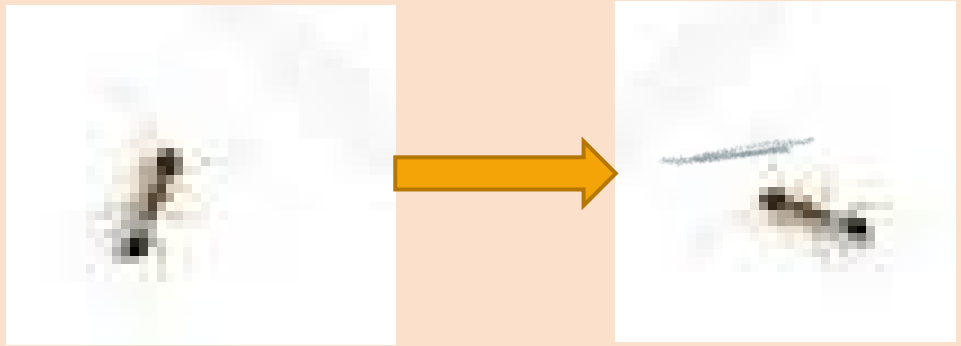
My observation of an assembly of "Indian black ants" around a dead cockroach

- When any organism is dead and is decaying, a large number of ants can be found near and around it.

Picture clicked by me

3:45 pm (2/12/2022)

My observation of ant's unusual behaviour

When no obstacle…	When obstacle line is drawn
	
❖ When there is no obstacle in the way of the moving ant, it keeps moving in an undefined, random path towards the edible's smell without changing its direction.	❖ When there is any unknown obstacle introduced in the way of the moving ant, it suddenly stops, changes direction and then moves.

These observations lre made in regard to odorous house ants(Tapinoma sessile)

My observation of a circular assembly of "**odorous house ants**" around a particle of food

- When a particle of any eatable, sugary substance is left undisturbed in natural circumstances, ants assemble around the area.

Picture clicked by me

Results and conclusions

- According to my observations, a conclusion can be made that ants, in their natural habitat, help the environment in various ways.
- Therefore, to benefit ourselves from these favour of ants to the nature, we must protect and conserve their natural habitat.
- So, efforts must be made towards reducing pollution, increasing or conserving forest cover, and allowing direct sunlight on plants rather than covering them.

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Thank you

-Khushi Bhargava