



Can honey bees, *Apis mellifera*, taste the presence of salts and metal chlorides?



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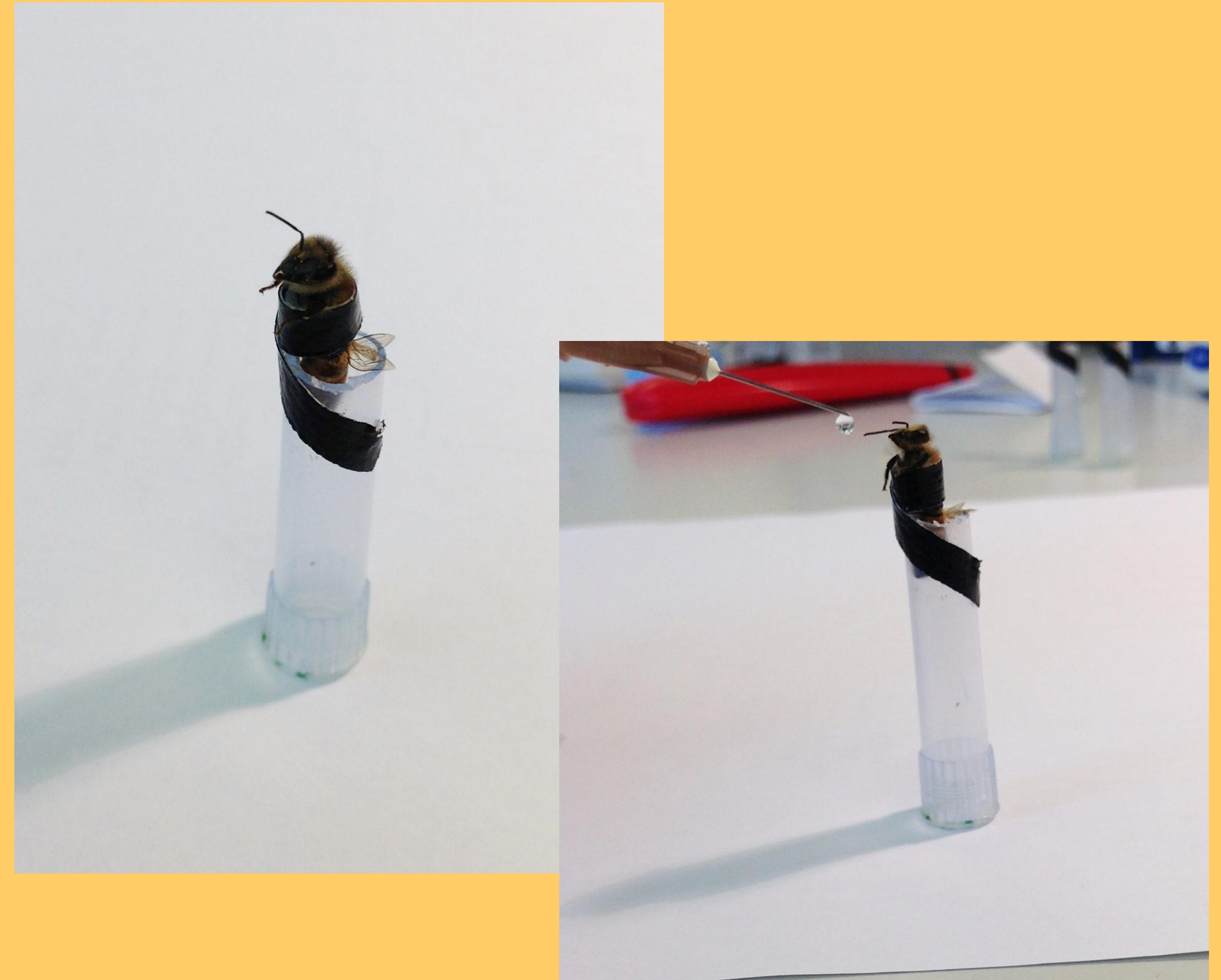
Aims

- To investigate honey bee taste perception of salts and metal chlorides using the proboscis extension reflex (PER).
- To compare taste sensitivity of the honeybee's antennae and mouthparts.
- We hypothesised that bees find low concentrations of salts phagostimulatory and high concentrations repellent

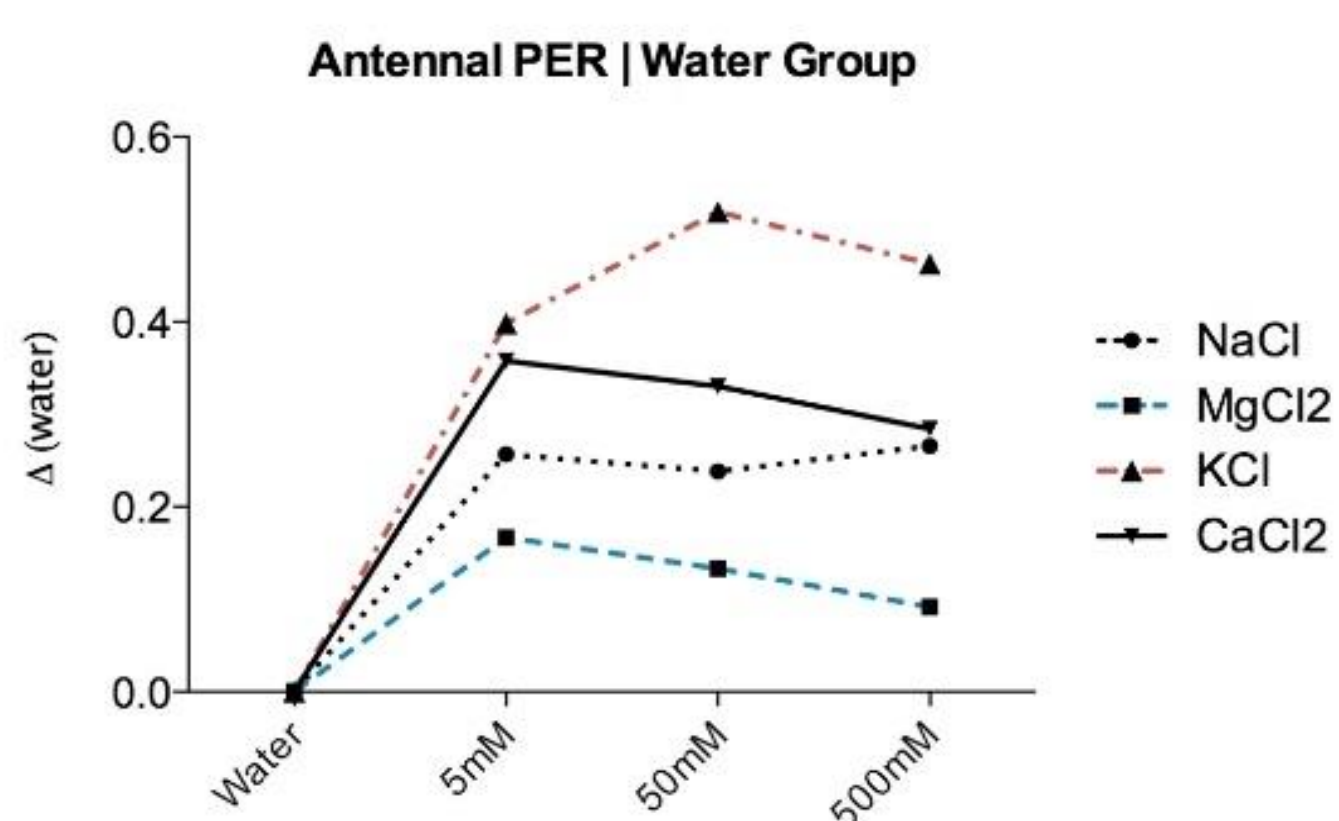


Method

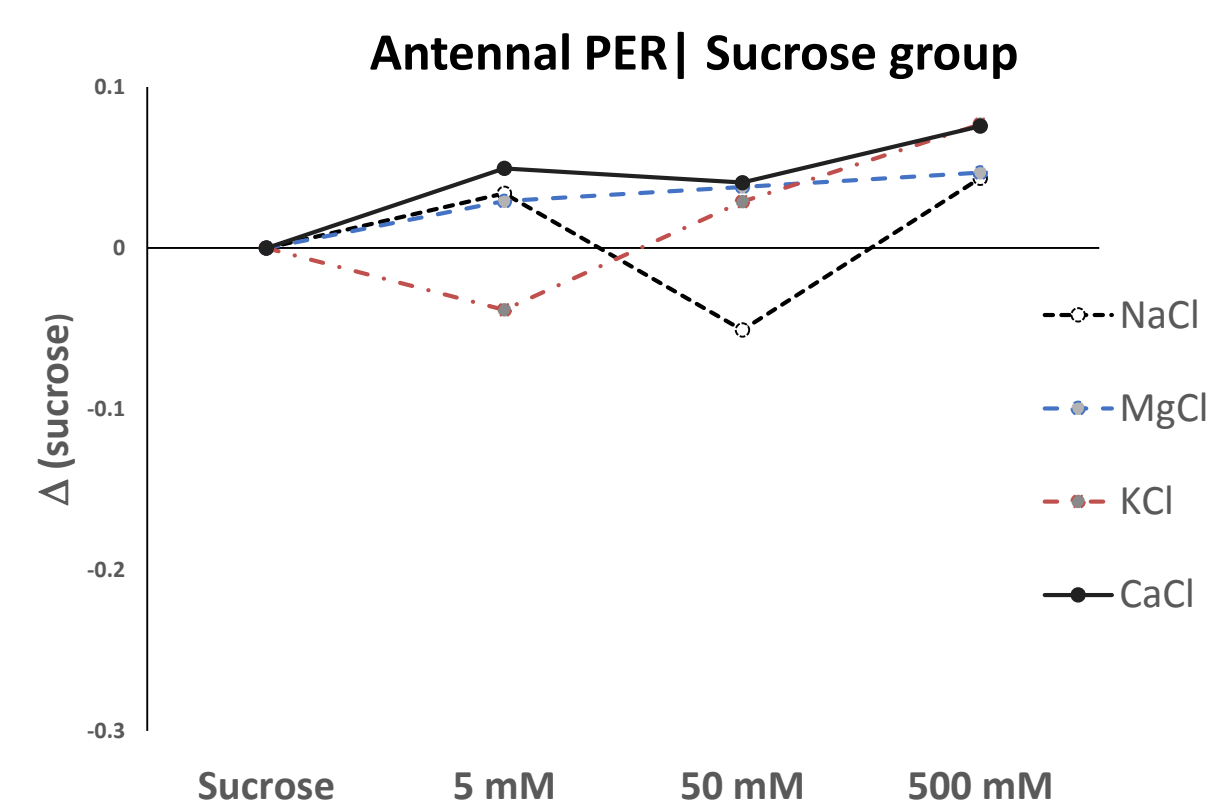
- Four salts, NaCl, CaCl, KCl and MgCl, were tested at 5, 50 and 500 μ M. Four metal salts were also tested, ZnCl, MnCl, CuSO₄ and FAC at 1, 10 and 100 μ M.
- All minerals were placed in a 1M sucrose and distilled water solutions.
- A drop of solution was touched on the one antenna and the proboscis extension response was recorded.
- A water control was touched on the other antenna between the mineral concentrations to act as a control.
- The concentrations of each solution were tested in ascending order from smallest (1 or 5 μ M) to largest (100 or 500 μ M).
- In the mouth part assay, the solutions were offered to the bee when the proboscis was extended and the bees were allowed to drink a drop of the solution. The response of the bee was recorded to see if the bee drank the solution or not.



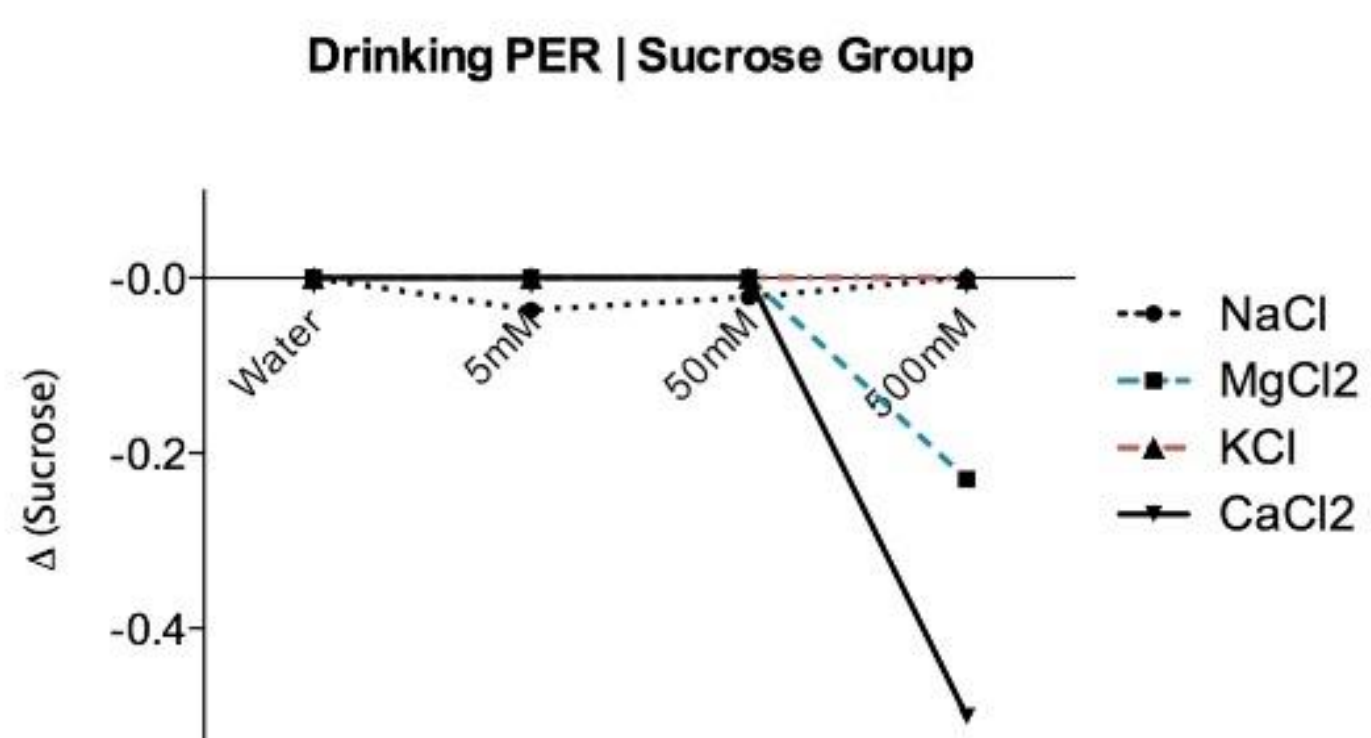
Results



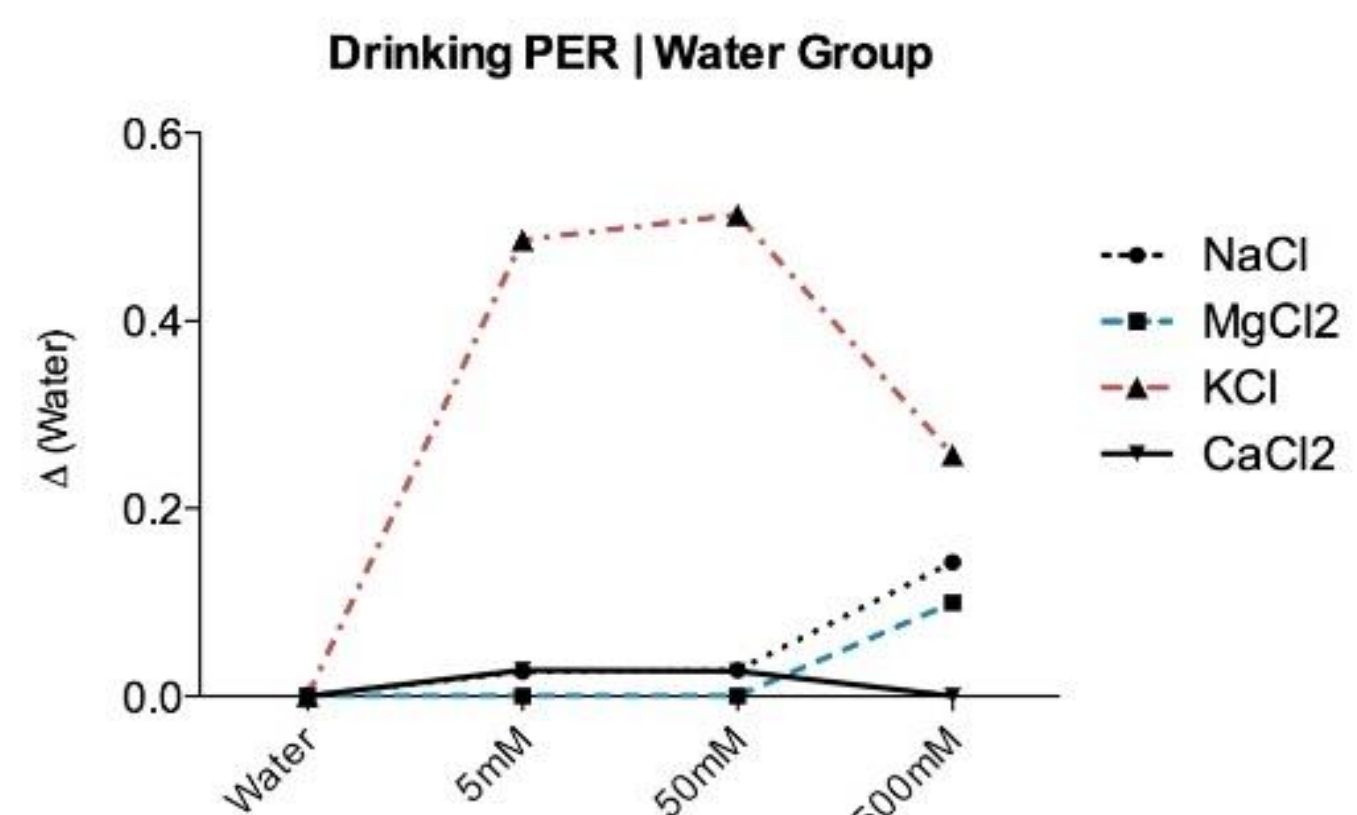
- KCl had the highest positive response when the mineral was in a water solution and touch on the antennae.



- In a sucrose solution, CaCl had the highest positive response when the solution are touched on the antennae.



- When the minerals were fed to the bee in a sucrose solution, CaCl and MgCl are inhibitory.



- When fed in a water solution, KCl had a much higher positive response than the other minerals.

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