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|  |  | Herbs, an Alternative to Modern Medicine?  Experiment |
| [**Home**](http://docs.google.com/index.html)[**Introducion**](http://docs.google.com/intro.html)[**Hypothesis/Prediction**](http://docs.google.com/Hypo.html)Experiment[**Data**](http://docs.google.com/data.html)[**Recommendations**](http://docs.google.com/recs.html)[**Conclusions**](http://docs.google.com/conclusions.html)[**Bibliography**](http://docs.google.com/biblio.html) |  | [**Materials**](http://docs.google.com/materialpicts.html):  |  |  |  |  | | --- | --- | --- | --- | | Balance | 2000mL Beaker (2) | Hole Punch | Chromatography Paper | | Hot Plate | Sink | Cotton Swabs | Living Bacillus Cereus | | Tab Water | Aprons | Goggles | Matches | | Distilled Water | Autoclave | Micro pipette | Candle | | Bleach | Bio-hazardous bag | Micro pipette tips | Trash can | | Tablets of Cats Claw (Powder form) | Echinacea (liquid form) | Tablets of Garlic Oil (Liquid) | Tweezers | | Well Tray | Gloves (surgical/rubber) | Aluminum foil | Petri Dishes | | Growth medium (tryptic-soy agar) | Paper Towels | Paper Cup Cake Holders | Metric Ruler | | Calculator | Rubbing Alcohol | Custard Dishes | Glass Rod |  [**Procedures**](http://docs.google.com/procedurepicts.html): 1. Put on apron and surgical gloves. Sterilize all glassware with the C2250 Sybron Barnstead Laboratory Sterilizer.  2. Disinfect lab area with a 25% bleach solution mixed with tap water in a 2000mL beaker. Makes sure you're still wearing your protective garments to protect from bleach.  3. Prepare the perti dishes, but make sure to keep the lips on to prevent any possible outside contaminants  4. Prepare agar plate (details with bacteria)   * + Tear open packet of agar powder and empty contents into a 2000mL glass beaker   + Measure out 1000mL of distilled water into a second 2000mL-glass beaker.   + Pour the 900mL of the Distilled water into the Agar waiting beaker, and with the remaining water, pour into packet (to gather the loose powder) and empty into Agar and Distilled water beaker.   + Place the first beaker containing the agar and distilled water on the hot plate and stir while heating with a glass rod until powder dissolves and slightly boils over   + Allow 10 to 15 minutes for mixture to cool   + Pour enough mixture into the petri dishes to cover the bottom of the dishes   + Let cool until agar solidifies   + Discard excess mixture   + Place petri dishes in refrigerator.   **Prepare the Treatments:**  **Cat's Claw 3:1 treatment**  5. At random, remove one tablet of Cats Claw from its bottle  6. Break capsule open, and empty powder into a cupcake cup.  7. Measure out 1 gram of Cat's claw on balance  8. Measure out 3mL of distilled water  9. Add the 1-gram of Cat's claw to the 3mL of water into a custard cup and mix  10. Transfer some of the mixture into 3 of the micro wells  11. Place Chromatography Disks in wells to soak.    **Cat's Claw 10:1 treatment**  12. Repeat Steps 5 through 7  13. Measure out 10mL of distilled water  14. Add the 1-gram of Cat's Claw to the 10mL of distilled water into a custard dish and mix well  15. Repeat Steps 10 and 11    **Garlic Oil 100%**  16. With a sterile pin, take a pill of garlic oil, and puncture  17. Take the Micro Pipette tips, Empty 40 micro litters of Garlic oil into 3 micro wells  18. Place Chromatography disks into the wells to soak    **Garlic Oil 1:1**  19. With a sterile pin, take a pill of garlic oil and puncture  20. Empty oil into custard dish  21. With a new Micro pipette tip, transfer 20 micro litters of the oil into 3 wells  22. Transfer 20 micro litters of distilled water into each of the 3 wells of oil.  23. Place Chromatography disks into the wells to soak    **Echinacea 100%**  24. With a new Micro Pipette tip, transfer 40 micro litters of Echinacea into 3 different wells  25. Place Chromatography disks into the wells to soak    **Echinacea 1:1**  26. Transfer 20 micro litters of Echinacea into 3 new wells  27. With a new Micro pipette tip, transfer 20mL of distilled water into each of those 3 micro wells.  28. Place Chromatography disks into the wells to soak    **Control Group**  29. Place 40mL of distilled water into 3 well trays  30. Place Chromatography disks into the wells to soak    **LET EACH OF THE DISKS SOAK IN THEIR CONCENTRATION**  **GRADIENTS FOR 15 to 20 MINUTES**    31. Make sure to read the instructions that accompany the bacterium  32. Put a sterile cotton swab into the test tube containing Bacillus Cereus to obtain the bacteria.  33. Establish a bacterial lawn with the streak-plate method:  A. Lift lid carefully to a 45(angle and lightly streak the cotton swab back and forth evenly across the entire surface of the petri dishes. Be sure to swab the bacteria to the edges of the dish.  34. Rotate the petri dishes 45deg and swab at rightangles to the first swab.  35. Make sure to recover each of the dishes so thatthere is no contaminants  36. With a sterile tweezers, place each of the 3soaking chromatography disks of the same gradient intothe petri dishes  37. Make sure to sterilize the tweezers in-betweenplacing each disk onto the petri dish by placing themin a candle for a few seconds, waiting until it coolsthen place in the flame again.  38. Once completed, place the petri dishes inverted into a heating box of a temperature of 30 degrees Celsius.  39. Let the dishes incubate over night    **THE NEXT DAY**  1. Put on surgical gloves and aprons and goggles  2. Disinfect working area with 25% bleach solution  3. Carefully remove the petri dishes from the hot box  4. With a metric ruler measure the zones of inhibition for each group  5. Record raw data  6. Repeat steps 1 to 5 for the next 5 days    **To Discard the Petri Dishes:**  1. Pour 100% bleach into each of the petri dishes, wait for gel to disintegrate  2. Pour 100% bleach into the original test tube of Bacillus Cereus until the tube is full. Close the cap tightly.  3. Place all of the petri dishes and the test tubeinto a sealed bio hazard bag. |