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|  | * Materials: * Petri Dishes * Ethyl Alcohol * Chromatography Paper * Agar Base * Bacteria (E-coli) * Bunsen Burner * Autoclave * Inoculating Loop * Bleach * Camera (to take images of dishes) * Ruler (to measure zones of inhibition * Procedure The first step in the experiment is to determine the lethal dose of ethyl alcohol. To do this, two agar colonies were created using standard innoculation protocols as documented in the Carolina Supply Company guidebook. Agar is created according to the directions on the agar base, and then this agar is autoclaved (for sterility) and allowed to cool to a gel. Bacteria is then transferred from the vial to the dishes by dipping the inoculating loop in the dish, and then swiping it along the gel, heating the loop between inoculations to insure that it does not pick up external bacteria.  Varying concentrations of ehtyl alcohol are used to soak several chromotography disks. We then let the bacteria incubate and grow for 24 hours, observing any zones of inhibition caused by the rings. The 'sub-lethal' dose will be the dose that causes a medium-sized zone of inhibition.  Once the sub-lethal dose is known, we can proceed to perform the experiment, which is to test whether a sub-lethal dose will cause any stress-induced resistance to a lethal dose. We prepared 6 agar colonies, and submerged half in 15% ethyl alcohol and half in nothing. We allowed them to incubate in this condition for 24 hours. At the end of this time period, pictures were taken, and disks containing 70% alcohol were added. We allowed this to incubate for another 24 hours, at which point we took pictures again and measured the resulting zones of inhibition. We attempted to repeat this part of the experiment, but the resulting colonies failed to grow wth the ethyl alcohol, even at sub-lethal levels. * Data The data from our experiment was inconclusive, failing to exhibit any of the patterns that our prediction would suggest. In fact, it fails to exhibit any discernable patterns, which leads me to believe that there were some issues with our protocol.  |  |  |  |  |  | | --- | --- | --- | --- | --- | | * **Dish** | * **Image Before** | * **Image After** | * **Zone (mm)** | * **Zone After (mm)** | | * 1A (pre) |  |  | * 2 mm |  | | * 2A (pre) |  |  | * 1 mm |  | | * 3A (pre) |  |  | * 0 mm |  | | * 1B (control) |  |  | * 0 mm |  | | * 2B (control) |  |  | * 0 mm |  | | * 3B (control) | * [Unavailable] |  | * 1 mm |  |  * As you can see, this data is inconclusive. See our conclusion for some possible explanations of this phenomenom. | |
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