**Pouring Vinegar as homemade Cleaning Agent**

**Introduction**

Vinegar is a weak acid usually made by fermenting Sugar Canes or Rice. It can be used as a food condiment. Because of its inherent acidity, it can soften up egg shells to the point it will turn soft and rippable. One common household Cleaning agent is Muriatic Acid which is used to clean and remove limestones from floor tiles or walls. We intend to know if the acidity of vinegar is sufficient enough to remove limestones from floors at a cheaper cost.

**Materials**

**Hypothesis**

Vinegar is a better cleaning agent than water, but is worse than muriatic acid. This is because vinegar is a weaker acid, and thus kills less bacteria than muriatic acid, which is a diluted form of hydrochloric acid.

**Experimental Procedure**

Find an area in your house that you would like to do the said experiment. In this said experiment, we chose to apply vinegar in the bathroom.

* Toilet

1. Pour a cup of vinegar in the bowl. Let it sit overnight.
2. The next morning, sprinkle with baking soda or borax; scrub, then flush.

* Tub or Sink

1. Pour 1/2-cup distilled white vinegar around closed drain and let sit several hours.
2. Scrub to remove buildup.
3. Drain, then rinse.

* Showerhead

1. Pour some white vinegar into a plastic bag, and secure it to your showerhead with a twist-tie.
2. Make sure there's enough vinegar so the bottom part of the showerhead is submerged.
3. Leave the bag on overnight. Remove the next morning just before showering.

* Tile Surfaces

1. Mix 1/2-cup white distilled vinegar with a gallon of warm water.
2. Mop floors or scrub countertops with the solution and allow to air dry.

**Data and Results**

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| **Stain Removal Data** |

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| **Cleaning Agent** | **Highly Effective (stain is gone)** | **Moderately Effective (stain almost gone)** | **Slightly Effective (some of the stain is gone)** | **Ineffective (stain is unaffected)** |
| Water |  |  | x |  |
| Vinegar |  | x |  |  |
| Muriatic Acid | x |  |  |  |

According to the data, vinegar is more effective as a cleaning agent than water but is less effective than muriatic acid.

**Observation**

**Conclusion**