ABSTRACT

The ways in which perpetrators attempt to dispose of their victims range from carelessly leaving the corpse in a shallow grave to total annihilation of the body through fire or even chemical means. Mexican-American drug cartels have been known to dispose of their victims' bodies by placing the corpses in containers and adding strong chemicals such as lye or to attempt to completely dissolve the bodies (Palmer, 2009). Even in popular media, such as books, movies, and television, disposal of corpses via the use of strong chemicals is a prevalent method. For example, in the second episode of the show Breaking Bad, the main characters attempt to dispose of a body using a bathtub and hydrofluoric acid. Unfortunately for the characters, the acid is too strong, it destroys the corpse, as well as the bathtub, the floor supporting the tub, and the tub below (Hillememtine, 2008). With all this media supporting the use of chemicals as a means of body disposal, I wondered just how accurate the information was. I decided to research the properties of corrosive household chemicals and see how well each one would destroy bone and soft tissue in a short period of time (figures 24-30).

I gathered supplies and materials, some of which I had at home and some I purchased.

RESULTS

Specimen 1: H2O (Control)

Measurements: 5.5"x3"x1.25"
Initial weight: 5.5 oz

No noticeable changes to the specimen.

Specimen 2: Carbonated Soda

Measurements: 5.5"x3"x1.25"
Initial weight: 5.5 oz

Slight increase in weight and showed slight degradation of the specimen.

Specimen 3: Bleach

Measurements: 3"x3"x1.25"
Initial weight: 7 oz

Slight increase in weight and showed slight degradation of the specimen.

Specimen 4: Potassium Hydroxide

Measurements: 3"x3"x1.25"
Initial weight: 10 oz

Slight increase in weight and showed slight degradation of the specimen.

Specimen 5: Sodium Hydroxide

Measurements: 3"x3"x1.25"
Initial weight: 9 oz

Slight increase in weight and showed slight degradation of the specimen.

Specimen 6: Sulfuric Acid

Measurements: 3"x3"x1.25"
Initial weight: 8 oz

Significant increase in weight and showed significant degradation of the specimen.

CONCLUSIONS

The overall results of the experiment verified my hypothesis. Specimen 1 in the H2O (control) figure 24 showed very little degradation, just a slight increase in weight. Specimens 2 in the soda (figures 25-30) and specimen 3 in bleach (figures 17-23) showed some discoloration, but no appreciable degradation of the tissue. Specimen 4 in potassium hydroxide (figures 24-25) increased in mass and showed a slight degradation of the tissue. Specimen 5 in sodium hydroxide (figures 26-30) showed a slight increase in weight and had more obvious tissue degradation, but very little effect on the bone. Specimen 6 in sulfuric acid (figures 18-23) showed the most noticeable decrease in mass and weight and close to half of the specimen was visibly degraded. Given another 48 hours, I believe the entire specimen would have completely annihilation.

The results indicate that some chemicals may be used effectively by criminals to dispose of a body. The sulfuric acid is particularly potent because of its availability to the public. It is possible that criminals will continue to dispose of their victims with this easily obtained chemical. Law enforcement and legislative groups should consider reporting identification in order to push those dangerous criminals.

MATERIALS

- White gallon buckets: cleaned, dried, and labeled
- Tap water (control)
- Drinking water (control)
- 50/50 mixture of soda and bleach
- Clean Shot® drain opener (Sulfuric Acid)
- Coca Cola® carbonated soda
- Oven Brit® oven cleaner (Potassium Hydroxide)

METHODS

In a review of the literature, studies indicated that hydrofluoric acid is very effective in destroying soft tissue and bone. Sulfuric acid was considered the second most corrosive chemical (Hartnett, Fulginiti, and Di Modica, 2011). Sodium hydroxide and potassium hydroxide are often employed by asassins as means of body disposal. One criminal, Adolph Laugten, disposed of his wife's body by placing it into a boiling vat of lye in 1897, and then burned what was left (Palmer, 2009). Based on my findings and the availability to readily purchase the chemicals, I decided to conduct my experiment using the following: Carbonated soda, Bleach, Potassium Hydroxide, Sodium Hydroxide, Sulfuric Acid and Water (as a control).

I then conducted research on the MSDS (Material Safety Data Sheets) for each chemical to make sure I was taking the proper safety precautions (Safety Company).

I gathered supplies and materials, some of which I had at home and some I purchased.

I cut the pig vertebrae into pieces, trying to make them as similar in size as possible, leaving the flesh intact. Each specimen measured between 5-6" in length, 2.5-4" in width, and 1-2" in height. I washed, rinsed, dried, and labeled the buckets.

I then measured each piece of vertebrae and recorded the height, length, width, and weight of each specimen. I also took pictures and noted visual appearance. I placed each specimen into a labeled bucket and, making a note of the time, I added each corresponding chemical and placed the buckets in separate safe locations outdoors. I photographed the specimens in the chemicals and covered the buckets with poly sheets.

After 12 hours I photographed, visually inspected, and recorded the results. I then placed the specimens back into their chemical solutions and returned them to their holding areas. After another 12 hours I photographed, visually inspected, and recorded the results. Thus, observations were made over a period of 24 hours.