Soft Matter Assignment

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Fun with bubbles

On blowing into the soap solution multiple bubbles were formed one after the other, often popping and sometime building up one after the other.
When blowing bubbles into a normal glass of water, the bubbles formed are small and often get destroyed very easily due to the high surface tension.
Soap in water reduced the surface tension of water and therefore soapy water is more flexible than normal water, therefore more and larger bubbles were formed in soapy water.

When two bubbles came together, they got attached to each other, which sometime resulted in their popping, and in other times the larger bubble engulfed the entire smaller bubble to make a larger bubble.

When multiple bubbles joined together, they often arranged themselves in a hexagonal honeycomb shape structure as though they were trying to prevent each other from popping, similar to the concept of Self-Assembly explained during class. Sometimes, there were a lot of bubbles that the entire thing got popped. In certain case, the bubbles built up to come out of the container while in other cases, this did not happen.

Some photos of bubbles formed are as follows(Sorry for the poor lighting):

Coffee Ring Experiment

I set up three different coffee drops with three varying concentrations of coffee, these were the observations I got:

1. The least concentrated drop of coffee made a ring very fast leaving a very faint stain
2. The moderately concentrated drop of coffee made a ring comparatively slow with a

very visible stain

3. The most concentrated drop of coffee made a ring very slow and even after formation, The ring could not be differentiated due to the dark residue of coffee left after the water had evaporated.

   When soap was added, the drop flowed more and ring formation was absent to a great extent, even them some part of the drop made rings when they flowed.

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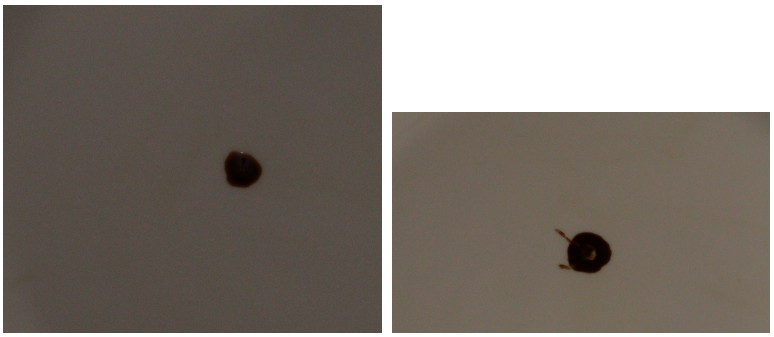

Figure 1: Most concentrated

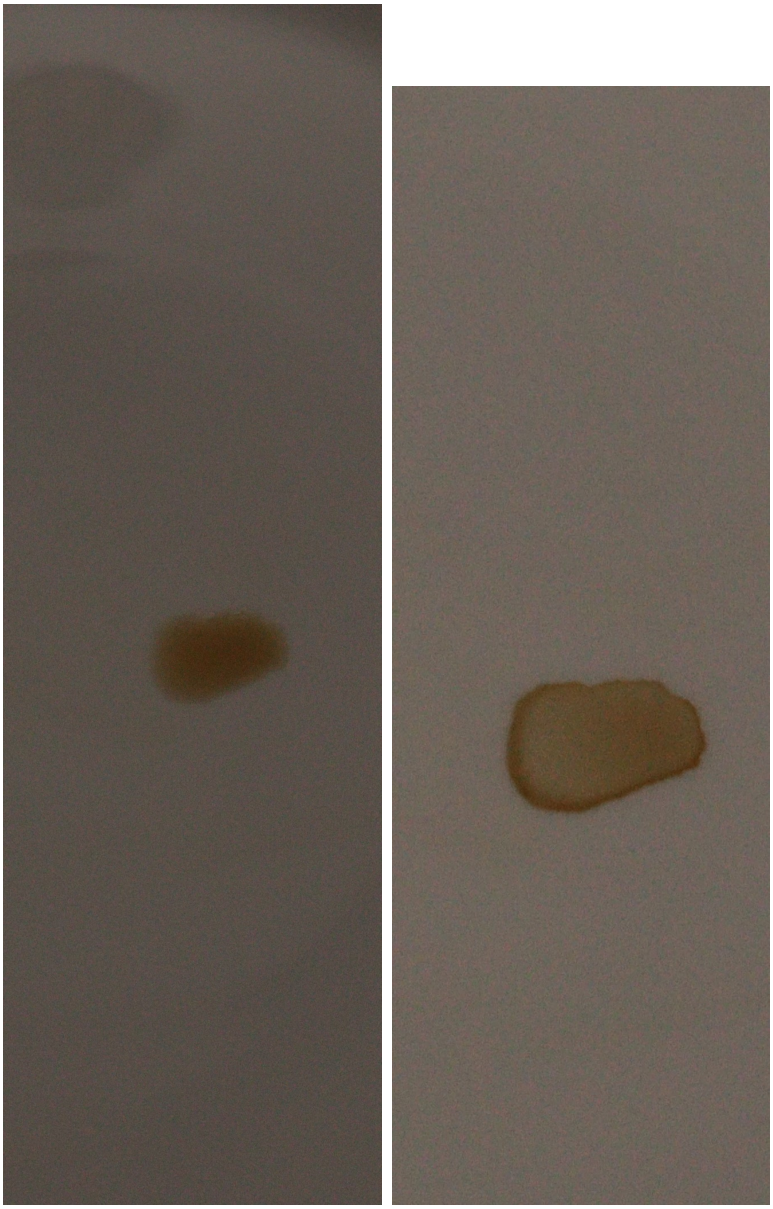

Figure 2: Moderately concentrated

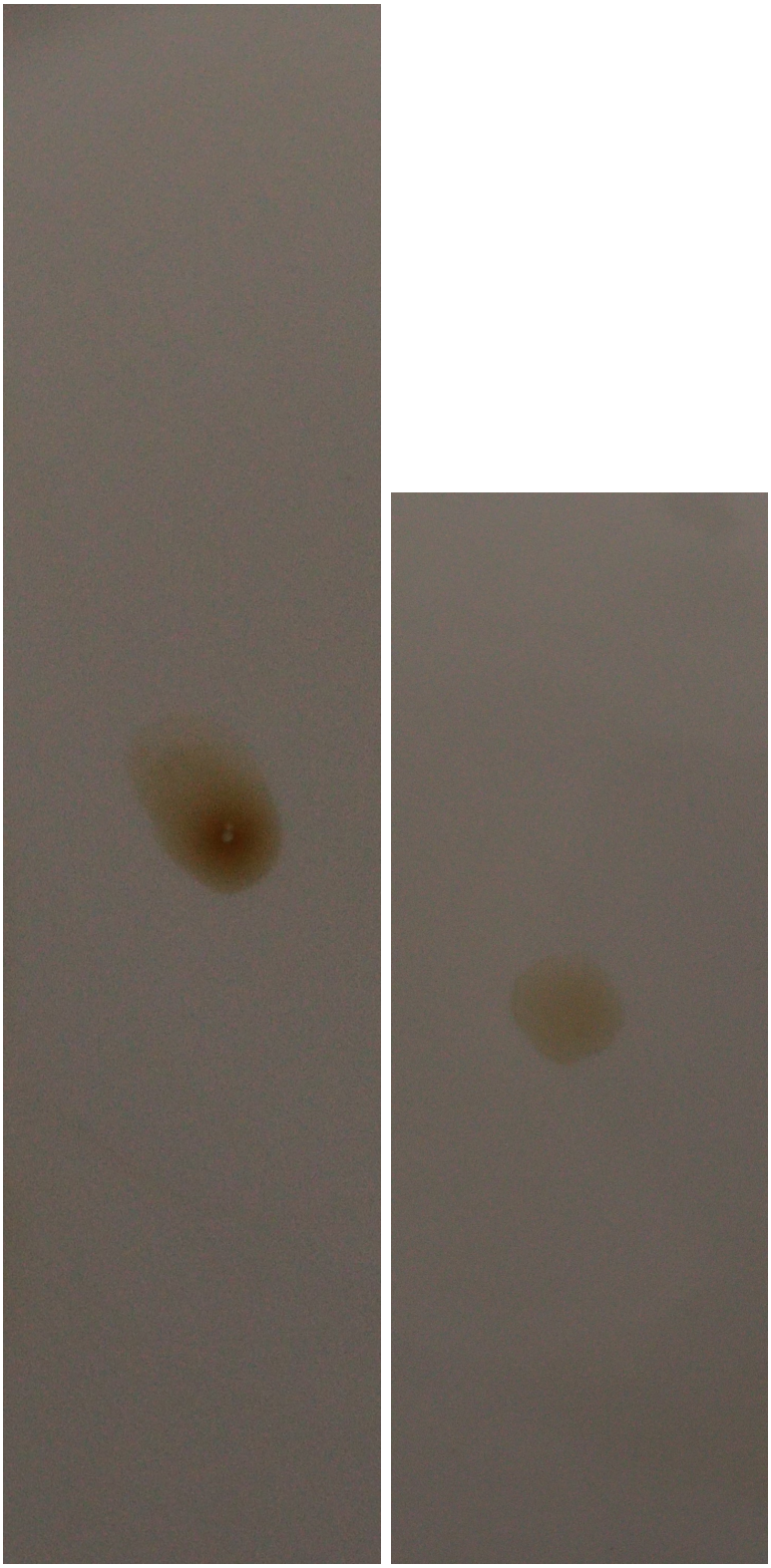

Figure 3: Least concentrated

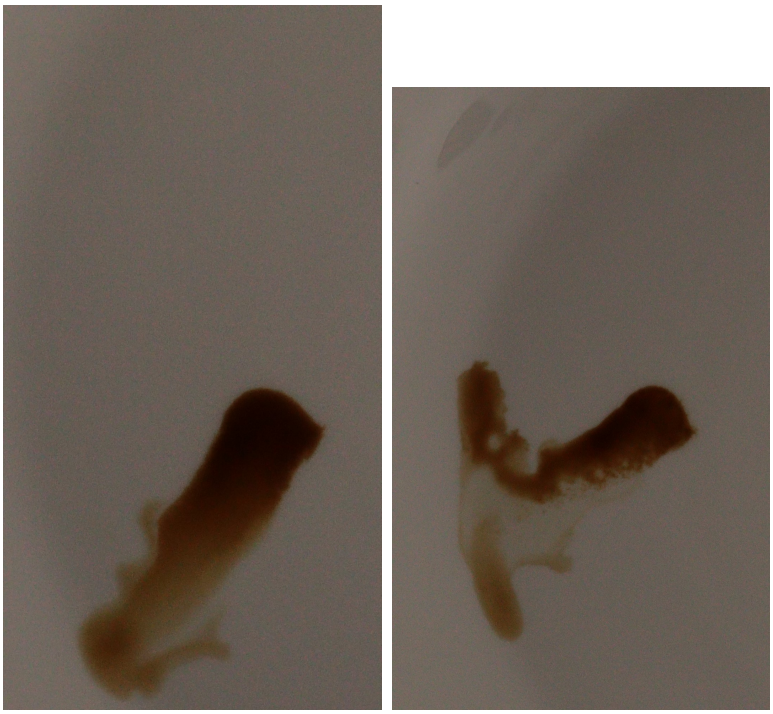

Figure 4: With Soap water