Comparing the Polymerization of Casein Protein Using Homogenized Bovine Milk Types

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Casein-based plastics could be a solution to the petroleum-based plastics that are plaguing the world. Using renewable and common monomers that are renewable and available around the world, we could make plastics that are better for the environment. This experiment was based on using various common kinds of milk as the polymer base to create a bioplastic, The milk was heated to the required temperature of 65 degrees Celsius and then Acetic Acid was added to create the plastic. Samples are then left to dry for 4 days then it was tested for flexibility and strength. The next day the tests consist of determining their elasticity, physical hardness/capabilities, and the ability to withstand pressure. Pictures were taken during and after the tests were conducted on the samples to illustrate any differences. There was an oil-like substance observed covering the samples after they were left out for both the whole and 2% milk. The hypothesis was proven to be invalid as the most flexible and strongest milk sample was the skim milk in all testing.