

# Abstract

Plastic is everywhere. Today's life without plastics is unimaginable. The benefits are huge, but not many people know about the negative effects of plastic waste on the environment. Being aware of them made us think of an alternative which will solve the problem. We thought if people used biodegradable plastics instead of petroleum-based plastics, the world would be much cleaner.

Biodegradable and renewable resources are needed to make bioplastics. Starch from agricultures such as corn, potatoes etc. can be used as a building block. A mixture of starch and additional substances becomes plastic in a heating-cooling process. This year's statistics show that world plastics production reached nearly 280 million tonnes. Recycling only does not solve the problem as still a huge amount of plastic waste ends up in landfills and oceans. The experiment shows that the resulting plastic is biodegradable and that it can be used for certain purposes. If this kind of plastic was used instead of conventional plastics, besides the plastic waste reduction, land and water contamination would be reduced as well since our plastic contains no toxic substances.

The fossil fuel resources will not last forever, and so will not the production of conventional plastics. Bioplastic is fossil fuel independent and is less harmful for the environment. In addition, it is made of renewable resources which makes this kind of plastic the “plastic of the future”. In this investigation, we are testing whether bioplastic can replace conventional plastic Testing its elasticity, elongation, etc.

In a ratio between starch and gelatine, as the gelatine percentage increases, the elasticity also increases. In a ratio between starch and gelatine, as the starch percentage increases, the stiffness also increases. A bigger amount of glycerin will yield more flexible plastics. A bigger amount of lemon juice will yield more flexible plastics. It is found by experiment that the ratio of starch to gelatine is related to the properties of the bioplastic. In a ratio between starch and gelatine, as the starch percentage increases, the stiffness increases and a bigger amount of glycerin will yield more flexible plastic.

