

# [Chapter 1995) showed that the application of cassava](https://assignbuster.com/chapter-1995-showed-that-the-application-of-cassava/)

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CHAPTER1INTRODUCTIONPlasticsare made of polymers, since starch is a natural polymers and it isbiodegradable, starch is very favorable raw material in plastic making. Plasticdoes not decompose easily in the environment, so we come up with an idea inmaking biodegradable plastic. Biodegradable plastic is a plastic that decomposenaturally in the environment that end up with a result of having less harmfulenvironment. In this study, the researcher would like to obtain biodegradableplastic derived from starch-based material.

The cassava starch will be used tomake biodegradable plastic to reduce non-biodegradable plastics. This will helpsolve the concern in environmental problem, climate change, pollution problemthat plastics contribute that end up in destroying the environment. Ourenvironment is now polluted, one of the reason is the non-biodegradableplastic. Plastic can give us environmental issues and pollution. Cassava starchas an effective component in making ideal biodegradable can help replace theconventional non-biodegradable plastic that causes big problem to the earth. Ceredaet al. (1992, 1995) showed that the application of Cassava starch have been providing a greatappearance, without stickiness, exhibiting luster and also transparency. Using raw material in makingbiodegradable plastic will help the environment in reducing and recoveringissues and pollution.

This study will able to help the society with itsenvironmental issues and practice us to use environmental-friendly materialsthat does not add pollution problems. Since plastic are composed of artificial polymers, ittakes time to degrade but it was predicted to be decompose a hundred orthousands of years (Kershaw et al., 2011). Plastic products createlitter, hurt wild life and marine life and threaten the basis of life on earth. So people need an alternative and effective component of plastic that is safe. Through this study, the researcher will able to help the animals, people andenvironment.

It also helps the earth in reducing the pollutants and toxic orharmful wastes. Biodegradable plastic could be an effective solution to thoseproblems and could save many lives in earth including the environment and canbe preserve in future generation. Thisstudy only covers plastic sheets not including other plastic materials such asplastic bags, plastic container, plastic cups and other plastic utensils. Mostof the materials used in experiment are accessible. However, there are fewmaterials that are not available in nearby store.

This experimentation includessun-drying that can end up with a result of long process. It will test thecapability of the cassava starch if it will be an effective component for anideal biodegradable plastic. The researchers started this project on August 2, 2017 up to         and conducted it in              . Plastic are non-biodegradable (Kržan, 2012)that’s why microorganism cannot easily decompose plastic waste (Hasan, 2006) becauseplastics are typically composed of artificial synthetic polymers. Starch-based materials has been marked advancing thedevelopment of biodegradable plastic (Smith and Sangseethong, 2006) one of theexample of renewable natural material that can be use in plastic making iscassava starch (Harsojuwono and Arnata, 2014).

Cassava starch gives a big possibility of being an effective componentfor an ideal biodegradable plastic. Chapter 2In order for us tohave a successful experiment, we should prepare the following materials. Stove, the stove supply enough heat to achieve the right consistency of the mixture. Next is pot, it is where the mixture of the bioplastic will be mix. Next is measuringspoon, we highlight using tablespoon and teaspoon, this measures the ingredientfor the bioplastic making and we also need a whisk for mixing. Lastly a flatcontainer, it is where the finish mixture will be put with the help of spatulaby scraping it and it is where the drying method will happen. In conducting ourideal bioplastic, we should have the following ingredients. First is thecassava starch, it is the base or the backbone of the plastic.

Next is thewater, the water’s role is used as a solvent to get and alter the biopolymerwhich is the starch into the solution. Next is vinegar, it has  acetic acid that helps the starch to dissolveeasily because of the presented ions in the mixture. Lastly is the glycerine orglycerol, it act as a plasticizer in which it makes the plastic flexible. To make our idealbioplastic, we should follow the proper procedures. First, prepare all thethings needed. Second, get the pot and put the proper measurements of the ingredientswith the use of measuring spoon, the measurements are the following: 1 tbspcassava starch, 4 tbsp water, 1 tsp vinegar and 1 tsp glycerine; then mix itwith the use of whisk until it will look like a milk.

Next is turn the stove onand put the pot on it and start stirring it, in a couple of minutes, it startedto change it form like a molding glue, then turning into white gel, just keepstirring until it achieve the thick consistency and a clear and transparentappearance excluding the bubbles, once you achieve it, stir it again in acouple of minutes. After that, turn off the stove, cool it down for a few minutesand put it in a flat container but you can also directly put finish mixture ofbioplastic in a flat container. Then proceed to the drying method, there are manykinds of drying method when it comes in bioplastic: sun-drying method is also amethod of it but it takes a couple of days even weeks, but you can also place itin a dry cool place, a perfect condition for drying. You can also use oven butthe temperature must be low or else it will melt again and lastly is the hair blower. In this study, the researcher come up with sun-drying method first but it takeso long  to dry up to we decided to usethe hair blower and oven method in separate bioplastic.