# Application of Biodegradable Polymer Materials Based on Manioc Starch in the Manufacture of Seedling Bags and Organic Fertilizers, Phase II

Zenni, Lucas (School: Colegio Estadual Jardim Porto Alegre)

Plastics are very used, because of the great degradation time, they are very harmful to the environment. A common container to accommodate seedlings are black polyethylene bags, however, they raise the cost of production and contribute to the accumulation of plastics in landfills. An alternative to minimize the environmental impacts of plastic waste generated in the production of seedlings is the production of new plastics that are biodegradable and have the necessary durability for the development of the seedling. Thus, searching for solutions is a necessity. I used, agar, glycerin, acid / base and cassava starch were used for the production of a plastic. In the year 2017 the tests were observed varying as solutions of acetic acid, manioc glands, glycerin and addition of agar to the mixture. In 2018 I change of acid per base was tested and the concentration of each substance in the mixture was varied. After preparation, the material was dried at room temperature, then the physical characteristics of the products were evaluated, based on characteristics such as flexibility, resistance and hygroscopy. After the tests, the material that best suited the production of the bags of the plant seedlings, which contains base that presented greater durability in the soil. The accelerated decomposition period made it unfeasible to use bioplastic, containing acid for sacks of seedlings, yet it was ideal for packaging bokashi, a fertilizer used to grow orchids. In this way, I sought to combine cost reduction and environmental preservation in the production of packaging.