

Name

Student Opportunity Funds - Project Description

Date

Puerto Rican Indigenous Medicinal Plants Research

For millennia, the indigenous peoples of Puerto Rico, the Tainos and their ancestors, have lived in biological harmony with their land using medicinal plants for the healing of physical and spiritual ailments. These two seemingly separate realms of human existence were seen as one by our Taino ancestors and they developed a science using plants to heal body, mind, and soul. Neuroscientists in the field of neurodegenerative diseases from the “western world” are beginning to research the medical potential of this ancient science which existed long before the Ancient Greek progenitors of Modern Medicine.

The aim of this project is to expound upon the lost knowledge of traditional indigenous medicinal plants of Puerto Rico and scientifically prove their effectiveness in a laboratory research context. My research project with Dr. Bernard Possidente studies the effects of *Petiveria Alliacaea* on the circadian rhythms of fruit fly Alzheimer’s models and has already shown signs of the curative capacity of indigenous medicinal plants that my grandmother has passed knowledge of on to me. Not only are these plants exceedingly difficult to come by on the open market for laboratory and personal use, but the knowledge of their true potential is even harder to come by. This project will achieve three ends with one aim; that is to discover a cure for Alzheimer’s Disease through recollection of ancestral plant medicine knowledge, the cultivation of such plants in a greenhouse with the purpose of supplying Skidmore labs, and the design and analysis of Neuroscience experiments in Dr. Possidente’s Circadian Rhythms lab.

These three activities have been the focus and passion of my college career at Skidmore College, and I have developed an extensive plan to reach this goal of curing Alzheimer’s Disease. It begins with a simple activity that is integral to the traditional Puerto Rican culture. That is, to spend time and talk with community elders. I have already spent hundreds of hours doing so and have a large network of people all over the island who are willing to share their ancestral knowledge of medicinal plants. The first goal is to record plants that are known to help with memory issues, brain fog, and specifically cure dementia-like symptoms. The second goal will be the recollection, germination, planting, harvesting, and shipping of these plants via the creation of a 500 sq ft. greenhouse for supplying Dr. Possidente with medicinal plants for research purposes. I will acquire seeds with the same methodology I have always used, which is to trade gifts and knowledge with other people of Taino descent who have preserved this ancient science of curing with plants and grow the plants in my backyard. The third goal of proving whether the plants have potential to cure Alzheimer’s Disease will be achieved with the help of Dr. Possidente and his team of student researchers with whom I have worked with since 2020. We will employ the same experimental protocol as before studying effects of single plant teas mixed in agar food on the circadian rhythms of tauopathic *Drosophila Melanogaster* (a.k.a fruit fly Alzheimer’s models).

Thanks to the kindness and generosity of Dr. Possidente and the people of Puerto Rico, these 3 goals are not only feasible, but I have historically produced consistent results for each goal. This research project is building on a solid logistical foundation and scientific framework which Dr. Possidente can attest to regarding the proven potential of our medicinal plants research. In terms of my education as a Neuroscientist at Skidmore College, this is my opportunity to publish my research and kickstart my career as a medicinal plants researcher. My hopes are that my fellow students will be inspired by my love for my culture, respect for my ancestors, and passion to show people how to heal diseases in a way that can be made permanently accessible for everyone.

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Senior Art Major Thesis: Exploration and Development of Porcelain Clay**Focus:**

I aim to explore different materials, techniques, and ideas to develop and execute an art installation by April of this academic year. This would entail the trial and testing of several porcelain clays which are not available at Skidmore's ceramics studio. My goal is to test a variety of porcelain clay formulations to determine the best clay that would most suit my thesis idea including varied forming methods like handbuilding and casting.

Methodology:

I plan on purchasing various materials for use towards determining the main material of my senior art show. This includes intense researching of raw materials including clay and glaze components/chemicals, as well as obtaining the recipes and reading sources for developing my own porcelain clay. Once I have the raw materials to start mixing my own porcelain, I would test a variety of pre-existing recipes that would result in the best fired translucency, stability, acceptance of glaze, and general workability during its un-fired phase. I would be testing for translucency along with other properties. The translucent properties of a porcelain clay can be greatly affected by the type of ingredients present and being able to test ratios and the inclusion or exclusion of certain ingredients is part of my understanding of recipe development and how clay is modified. I would also test my own mixed sample clays against a standard premade porcelain clay from a ceramic supply distributor. Then, I would fire each recipe in tests to see which yielded the optimal porcelain properties.

Feasibility:

Producing several porcelain test recipes will be challenging but very possible. With extensive gathering of my own research, the access to online ceramics forums and groups, and the guidance and experience of Professor Wilt, I am confident that this exploration of porcelain clay will be fruitful in understanding which clay, be it produced by me or a ceramic supply company, is best for both handbuilding and casting ceramic forms.

Justification:

It would be easy to buy a number of different premade porcelain clays from ceramic companies. However, there are a few drawbacks to limiting myself to just those options. Pre-mixed and hydrated clay is expensive because of the labor and convenience of the product. Additionally, water adds significant weight thus increasing shipping costs. Most companies sell their clay in increments of 25 or 50 pounds which would be very costly. Then, to buy different brands of porcelain to compare and test would raise the expense even higher, and I would still need to purchase dry raw materials to test my own clay recipes. The downside of even the most convenient products is that they lack the complete customization of certain properties like the translucency, color, or plasticity of the clay body. These are things I would aim to experiment with while testing and developing porcelain from scratch. Lastly, in the case that I prefer the premade porcelain, I would then need to buy additional pre-mixed clay in its powdered form. I plan on casting porcelain slip into molds thus requiring dry porcelain to be mixed into a pourable consistency.

Impact on my Skidmore education:

In general, the testing and development of clay and its components and properties leads to an increased understanding of the material and its chemical and technical aspects. Being an artist is not just about producing artwork, it is also about having a deep understanding of your medium and being able to control and find the best materials that suit your work. An artist's creativity is freed once they achieve full understanding of the materials. Embarking on a journey of material exploration during my college career is massively advantageous due to the community of the studio and the input of a professor. After leaving the academic sphere, we lose the readily available support of these people. Pursuing a deeper understanding of the material would also further my education in ceramic art through learning the importance of ceramic testing and working towards a more well-rounded art student and clay artist. The experience provided by receiving the Student Opportunity Funds would push me further along my career path in developing a body of work during my senior year, as well as prepare me for working in ceramics studios and as an independent artist after graduation.

Impact on the Skidmore community:

Through this aid, I would be able to share my growing knowledge with my peers who would be working towards their own senior art theses. My trials and errors would be helpful to them in inspiring, motivating, and furthering their ceramic explorations too. While each of my peers in the advanced ceramics class is working on their own art thesis, we communicate with each other endlessly about the medium of clay, form and design, artist inspirations, and giving each other advice and constructive criticisms. We come in and work alongside one another and grow from our individual and shared experiences. This is the beauty of a collective space and a liberal arts education.