



SEEDS HackSciArt

SEED 22-Medioambiente

RESEARCHERS

(Dra.) Beatriz Roncero Ramos (broncero@us.es)

Departamento de Biología Vegetal y Ecología

1. ESSENTIAL DIMENSION

(Objective descriptive information of the scientific seed)

NAME

“Biocrusts, the skin of the soil”

KEYWORDS

Life in the desert, resistance

BRANCH

It can be included in ecology and, more specifically, in microbiology, biodiversity of dryland soils, soil restoration or ecohydrology.

ABSTRACT

We study its ecosystem functions in arid zones, such as its influence in reducing erosion or increasing soil fertility and stability. Conserving them is key for ecosystems in arid zones, such as deserts, due to how beneficial they are, which is why they are also used to restore soils degraded by human activity (for example: after the abandonment of a mine).

METAPHOR

It is usually thought that there is no life in deserts and less in the soil. Many times it is considered a "dead" land and an unattractive landscape, but if we look closely we can find communities very rich in biodiversity, such as bio-crusts, and which are very beneficial both for the ecosystems and for the populations that live in them. zones. Biocrusts colonize the first centimeter of the soil surface, creating a crown differentiated from the soil below, richer in nutrients and more stable, which is why it is often called "the skin of the soil".

PHASES OF THE USUAL SCIENTIFIC METHOD

1. Ask what we want to analyze about biocrusts, for example, how do they influence the amount of nutrients in the soil? Or what organisms compose them in different types of deserts?
2. Design an experiment that allows us to solve our question in the simplest way possible and minimizing the impact on communities (for example, using non-invasive techniques, when possible, such as photography).
3. Carry out data collection during the experiment: for example, by sampling and subsequently performing laboratory analysis of the amount of nutrients in the samples.
4. Statistical analysis of the results to find out if our hypothesis is confirmed or not..

TOOLS

Techniques for chemical and physical analysis of soils, microbiological, genetic or spectral.

RESOURCES

- 1) Atlas on biocrusts in mainland Spain: https://ecoretosdrylands.wordpress.com/atlas-de-las-biocostras-de-la-peninsula-iberica/?preview_id=189&preview_nonce=b3d50ea25e&preview=true
- 2) Dissemination article: <https://novaciencia.es/biocostras-ual/>

Picture of a lichen-dominated biocrust taken in the Tabernas desert (Almería):



2. ADDITIONAL DIMENSIONS

(The following sections add subjective information from the scientific seed, in order to inspire creatives in the creation of a SciArt work. Some of the sections may not have information if the researcher chose not to specify anything.)

SCIENTIFIC MOTIVATION

The study of biocrusts motivates me a lot because they are largely unknown to society in general. I believe that it is important to value them so that they are preserved and protected and, furthermore, I believe that it also serves to better appreciate the aesthetic value of desert landscapes.

METAPHYSICS

From a metaphysical point of view, the fact that bio-crusts are difficult to see and recognize helps us to realize the need to take a closer and more careful look at our surroundings.

ETHICS

Arid ecosystems are largely degraded and their degradation will continue to increase due to climate change and intensive land use by humans. This is going to affect a large part of humanity that lives in these areas. Knowing the communities that inhabit them, such as biocrusts, the benefits they have and the need to protect them, is really important to maintain these ecosystems and their societies.

COLORS

I propose moss green, since mosses are one of the organisms that can form part of bio-crusts (also lichens, bacteria or fungi).

AROMAS

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FLAVORS

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SOUNDS

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