









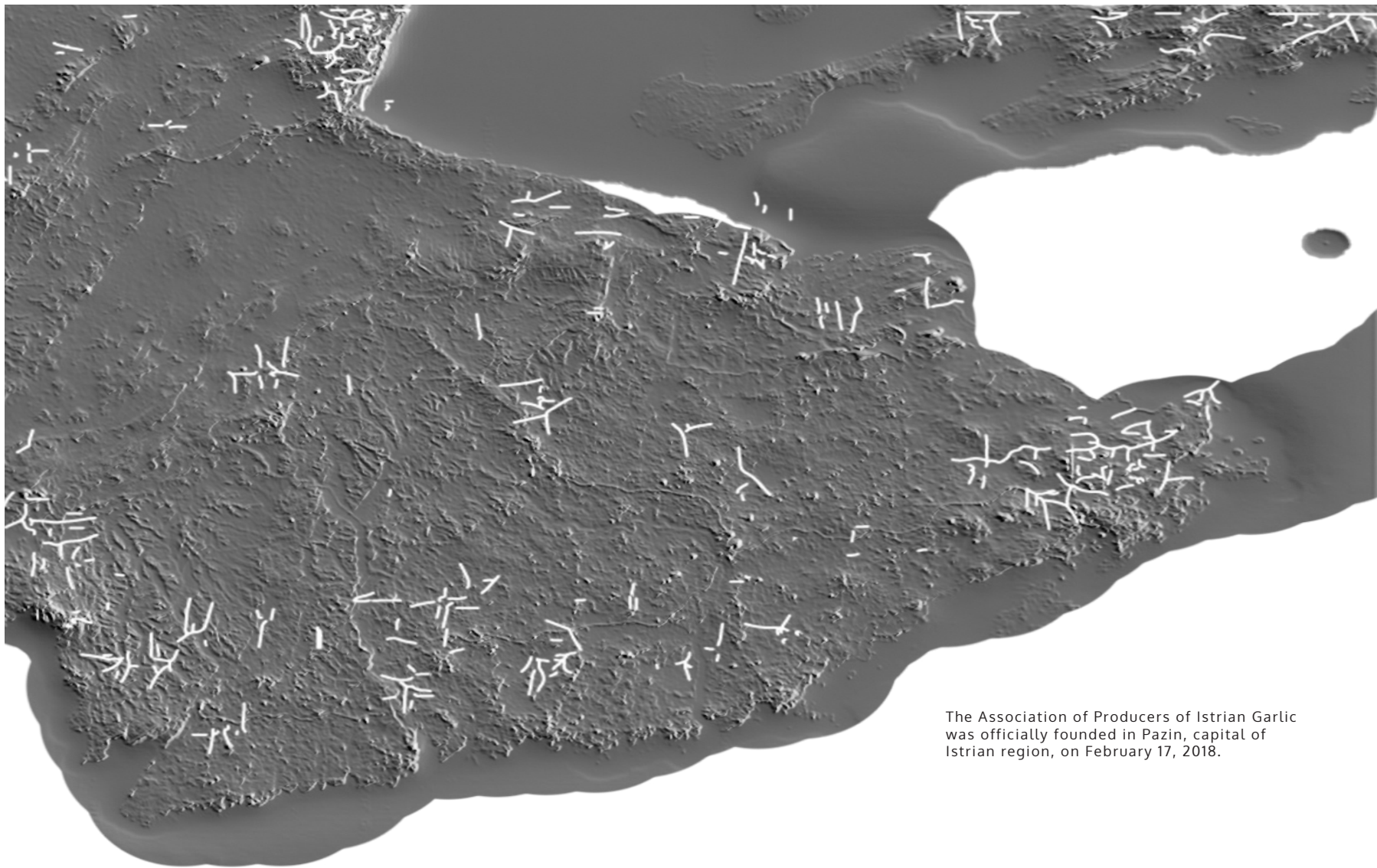


Geographical indications establish intellectual property rights for specific products, whose qualities are specifically linked to the area of production.

Protected designation of origin (PDO) .  
Food, agricultural products and wines.  
Every part of the production, processing and preparation process must take place in the specific region.

Protected geographical indication (PGI).  
Food, agricultural products and wines.  
For most products, at least one of the stages of production, processing or preparation takes place in the region.





The Association of Producers of Istrian Garlic was officially founded in Pazin, capital of Istrian region, on February 17, 2018.

# Bulb morphological characteristics of garlic ecotypes from Istria

Bernard Prekalj<sup>1,2</sup>, Mario Frančić<sup>1,2</sup>, Dean Ban<sup>1,2</sup>, Iva Bažon<sup>1,2</sup>, Danko Cvitan<sup>1</sup>, Smiljana Goretta Ban<sup>1,2</sup>

<sup>1</sup>Institute for agriculture and tourism, Karla Huguesa 8, Poreč, Croatia

<sup>2</sup>Centre of excellence for biodiversity and molecular plant breeding, Zagreb, Croatia (smilja@iptpo.hr)



## Introduction

Garlic (*Allium sativum* L.) is an indigenous species in Croatia and is mainly grown on small farms. Local ecotypes can be a source of genetic material. The aim of this research was to collect autochthonous ecotypes of red garlic in Istria and to describe them.

## Methodological approach

Ten red garlic ecotypes were collected in Istria during the summer of 2018. Samples were taken from the following locations: Pičan (IPT341), Gračišće (IPT343), Lindar (IPT337), Beram (IPT345), Tinjan (IPT342), Rovinj (IPT340), Opatjilj (IPT346, IPT347, IPT348, IPT349). The analysis also includes the ecotype of Istrian Red Garlic (IPT013), which is listed on the Croatian conservation varieties list as preserved variety, and is held at the Institute for Agriculture and Tourism Poreč.

Samples were morphologically described by ECP/GR descriptors for *Allium* species (IPGRI, 2001). The following characteristics were described: shape of mature dry bulbs (7.1.11), shape of mature garlic bulb (7.1.12), outer skin colour of compound bulb (7.1.16.1.), skin colour of clove (7.1.16.2.), number of cloves per compound bulb (7.1.19.), bulb structure type (7.1.20.), shape of compound bulb in horizontal section (7.1.21.). Data are expressed as mean, mod and coefficient of variation.

Hierarchical cluster analysis was used to determine differences between garlic genotypes. Euclidean distance was used as the distance determination method, and Ward method used as a hierarchical algorithm. Cluster analysis was made in program environment R (R Core Team, 2008) using the *hclust* function from the basic program package.

## Results

Eleven garlic samples were separated into two groups (Graph 1). Samples IPT346 and IPT348 are not taken into account in the analysis because they do not have a flower stalk.

IPT342-IPT345 in first group have white-cream outer skin colour of compound bulb, white to yellow and light brown skin colour of clove and more numerous cloves per compound bulb (Table 1).

Second group is divided in two subgroups.

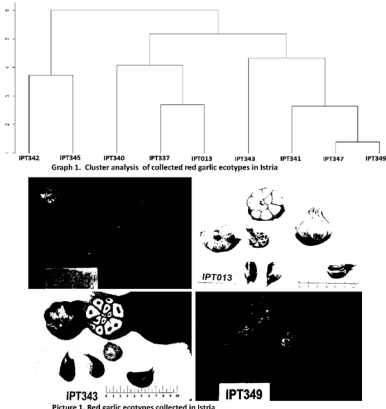
Table 1. Bulb characteristics of collected red garlic ecotypes collected in Istria

Code	Location	SV <sup>a</sup>	7.1.11.1. mature dry bulb <sup>a</sup>	7.1.12. mature garlic compound bulb <sup>b</sup>	7.1.16.1. colour of bulb <sup>c</sup>	7.1.16.2. colour of clove <sup>d</sup>	7.1.19. cloves per compound bulb <sup>e</sup>	7.1.20. bulb structure type <sup>f</sup>	7.1.21. shape of compound bulb in horizontal section <sup>g</sup>
IPT013	Lindar	SV <sup>a</sup>	4	3	2	4	12.2	2	1.6
	M	4	3	4	4	9.7	2	2	2
	CV	0	0	0	0	13.27	0	32.27	0
IPT337	Lindar	SV	3	3	1.5	5	10.8	2	1.8
	M	3	1	3	5	11	2	2	2
	CV	0	0	0.734	0	13.73	0	24.84	0
IPT340	Rovinj	SV	2.3	3	3	5	15.8	2.4	2
	M	3	3	6	5	14	2	2	2
	CV	41.69	0	67.85	0	15.75	22.62	0	0
IPT341	Pičan	SV	2	3	5	5	9.4	3	1
	M	2	3	5	5	10	3	1	1
	CV	0	0	0	0	16.13	57.75	0	0
IPT342	Tinjan	SV	2.1	3	1.4	1.8	15.2	1.6	1.2
	M	2	3	1	1	15	2	1	1
	CV	35.13	0	36.88	53.69	16.42	34.23	37.75	0
IPT343	Gračišće	SV	2	3	6	6	11	1	1
	M	2	3	6	6	11	1	1	1
	CV	0	0	0	0	18.09	39.12	37.26	0
IPT345	Beram	SV	1.4	3	1.4	2.1	18.4	1.4	2
	M	1	3	1	1	15	1	2	2
	CV	49.94	0	36.85	75.95	18.08	39.12	0	0
IPT346	Opatjilj	SV	2.1	3	1.7	1.8	14.4	1.4	1.2
	M	2	3	2	2	16	1	1	1
	CV	27.65	0	28.41	23.42	12.61	0	37.75	0
IPT347	Opatjilj	SV	1.2	2.9	1.6	4.9	12.6	2.6	1.2
	M	1	3	1	5	11	1	1	1
	CV	35.13	10.90	39.60	6.45	33.95	74.97	37.26	0
IPT348	Opatjilj	SV	3	4	2	5	20.8	0	0
	M	3	4	2	5	22	1	1	1
	CV	0	0	0	0	13.55	0	0	0
IPT349	Opatjilj	SV	2	3	1	5	15.4	2.2	1
	M	2	3	1	5	12	2	1	1
	CV	0	0	0	0	23.3	35.32	0	0

<sup>a</sup> 7.1.11. Shape of mature dry bulbs (1.flat, 2.flat globe, 3.rhomboid, 4.broad oval, 5.globe, 6.broad elliptic, 7.oval, 8.spiral, 9.high top, 9(other)). <sup>b</sup> 7.1.12. Shape of mature garlic bulb (1. circular, basal plate prominent, 2.heart-shaped, basal plate retracted, 3.broadly oval, basal plate even), <sup>c</sup> 7.1.16.1. Outer skin colour of compound bulb (1.white, 2.cream, 3.baby, 4.white stripes, 5.light violet, 6.violet, 7.dark violet, 9(other)). <sup>d</sup> 7.1.16.2. Skin colour of the clove (1.white, 2.yellow and light brown, 3.brown, 4.red, 5.violet, 9(other)). <sup>e</sup> 7.1.19. Number of cloves per compound bulb (1.1, 2.2-4, 3.5-10, 4.11-15, 5.16-20, 6.30, 7.around 50). <sup>f</sup> 7.1.20. Bulb structure type (1.regular multi-fan groups, 2.regular two-fan groups, 3. regular multi-cloved radial, 4.regular quadripole, 5.regular two-cloved, 6.regular), <sup>g</sup> 7.1.21. Shape of compound bulb in horizontal section (1.circular, 2.elliptic, 9(other)). SV – mean, M – mod, CV – coefficient of variation (%)

IPT340 and IPT337 from the first subgroup have violet skin colour of clove, regular two-fan groups type of bulb structure and shape of compound bulb in horizontal section is elliptic (Table 1). They are very similar with the sample IPT013 which is Istrian red garlic from the Croatian conservation varieties list (Picture 1).

Four samples are in the second subgroup. IPT347 and IPT349 have white-cream outer skin colour of compound bulb, violet skin colour of clove, medium number of cloves per compound bulb, regular two-fan groups bulb structure type, and circular shape of compound bulb in horizontal section (Table 1).



Picture 1. Red garlic ecotypes collected in Istria

## Conclusions

- The research has shown that samples grown geographically close have similar descriptive characteristics.
- It is assumed that agriculture producers use non certified planting material of the same or similar origin.
- Further genetic research will yield reliable data about the relationship of red garlic ecotypes in Istria.

Istrian red garlic

Croatia, Istria

Kingdom: Plantae  
Clade: Tracheophytes  
Clade:Angiosperms  
Clade: Monocots  
Order: Asparagales  
Family: Amaryllidaceae  
Subfamily: Allioideae  
Genus: Allium  
Species: *A. sativum*

Wild herbs, spices,condiments

8 large cherries,  
2 small flat cherries in the middle

Dark red cherries, white  
outer shell

Planted in October, picked  
before the first rains of June

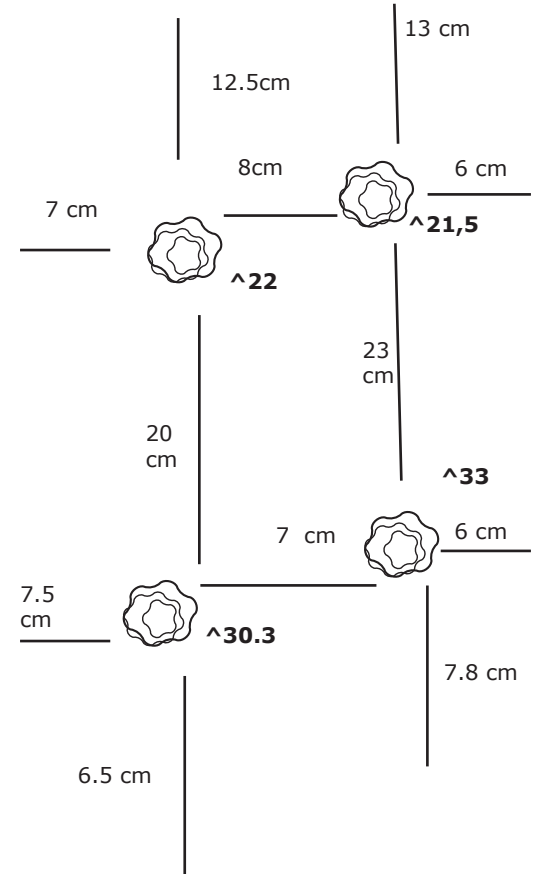
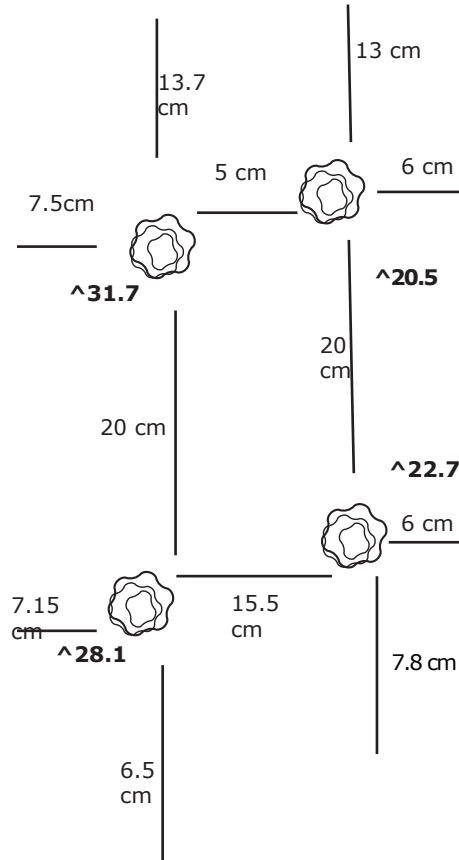
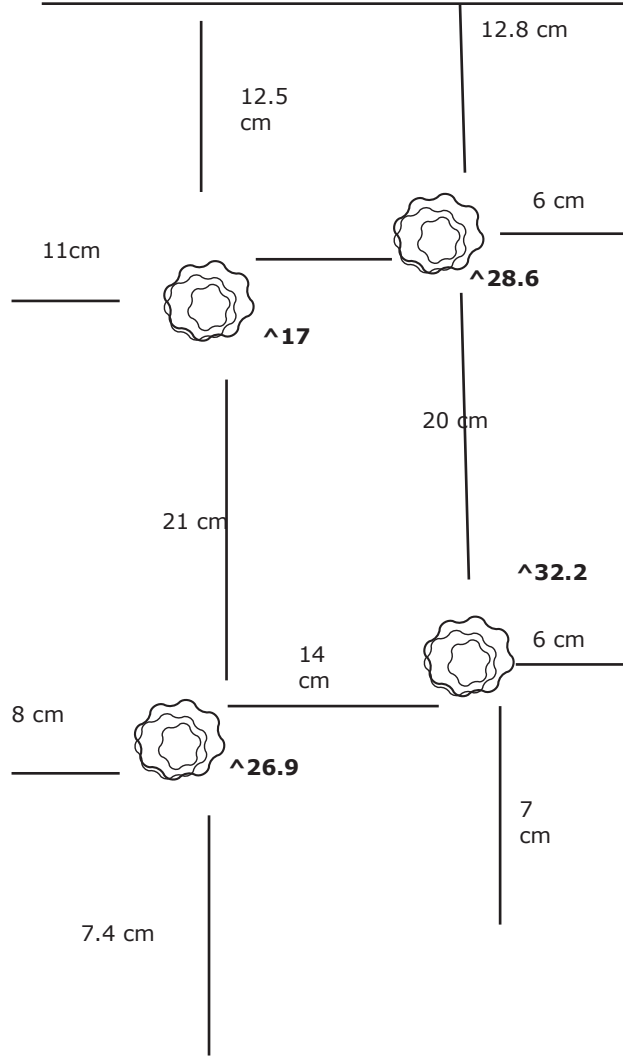
On the variety list of the  
Republic of Croatia,  
in the protection phase

Flower stalks (PASKI)  
harvested in May.

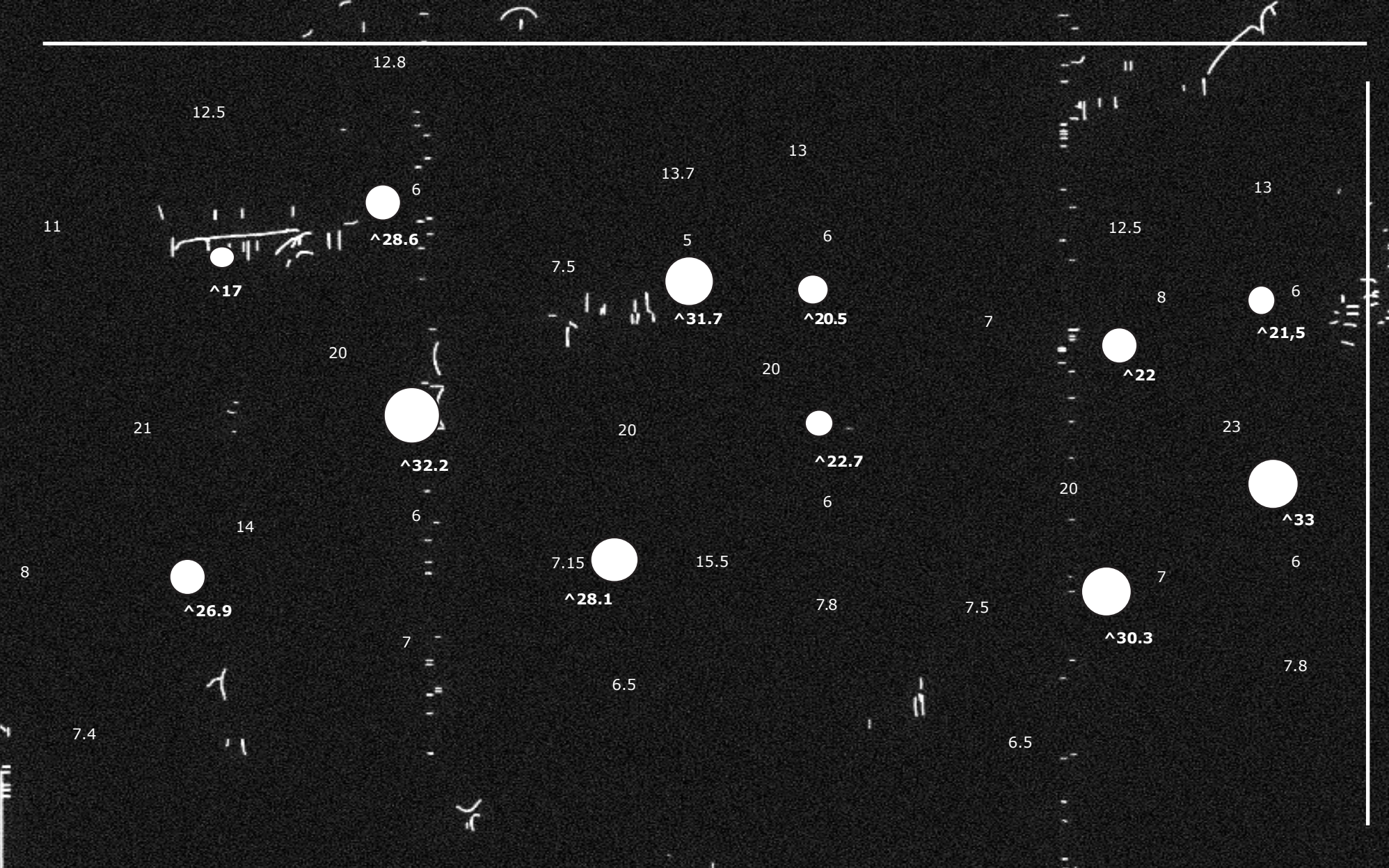
90 cm (length Growbox)

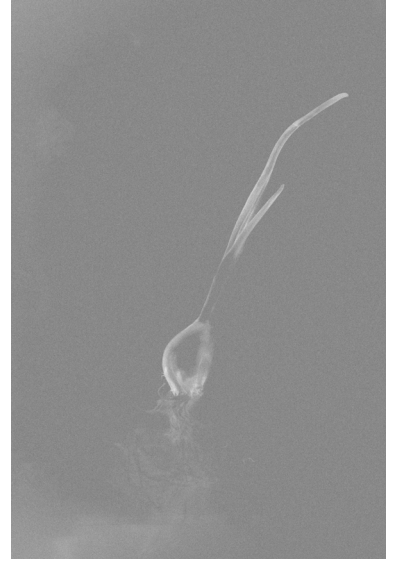
^ height GARLIC CROP; measured December 7th 2021 (cm)

46 cm height Growbox









Red light and blue light are significant for mature plants beginning to flower; help them produce more leaves and more crops

Blue light comes to the best use for plants when they are just small, fragile seeds as it helps with the plant's production of chlorophyll, pigment that traps light energy and is integral to photosynthesis

Violet light can be applied to plant's at any point in its life to enhance the color and taste while at the same time ensuring plant's durability

Yellow and green light bring out the green colour in plants, enhancing the production of chlorophyll

Red & blue light are most effective for plant growth, while yellow & green have minimal effect. Chlorophyll is green, therefore, colors on the opposite side of the color spectrum are most efficient for plant growth including red and blue. Next, in increasing order by wavelength is violet, blue, green, yellow, and lastly red which has the longest wavelength and is least energetic. Providing your plants with each type of light will benefit the plants the most. If you have a higher concentration of blue and red light rather than yellow and green light there will be enhancements in the function of your plants. Other considerations when choosing a light is how intense the light is and how long the plants are exposed to the light. Higher intensity increases the amount of photosynthesis the plant goes through. The duration of light outside is based on the sun. 12 to 14 hours of exposure to light are the most beneficial for plant's growth in an artificial environment.<sup>1</sup>

**MCALLISTER'S GLASS CYANOTYPE PROCESS**

(You can use any base formula to make the cyanotype. The formulas below have been tested.)

**USING BOSTICK & SULLIVAN'S LIQUID CYANOTYPE PREMIX (500 ML)**

Solution A: 250 ml

Solution B: 250 ml

Gelatin 65.625 g

**USING DICK SULLIVAN'S CYANOTYPE FORMULA (Without Ammonium dichromate)**

<b>Total Volume</b>	<b>200 ml</b>	<b>400 ml</b>	<b>600 ml</b>
Green ferric ammonium citrate	27.2 g	54.4 g	81.6 g
Potassium ferricyanide	9.2 g	18.4 g	27.6 g
Oxalic acid	1 g	2 g	3 g
Water	200 ml	400 ml	600 ml
Gelatin	26.25 g	52.5 g	78.75 g

**PROCESS****1) Mixing**

[Safe light]

Pour water into a stainless steel sauce pan

Add cyanotype chemicals one at a time, stirring to dissolve

(Filter emulsion to get any un-dissolved crystals out)

(Tilt the pan to check that the emulsion is free of un-dissolved crystals)

Slowly stir in gelatin

(Dissolve cold: Cakes in hot water)

Slowly heat to 120° F (48° C) stirring constantly

(Remove from heat as soon as it reaches 120° F or crystal formation will start & gel will burn on the sides of the pan)

(Continue stirring the emulsion and tilting the pan until the gel coating the bottom of the pan is free of small gelatin specs)

Let cool in fridge in light tight container

**2) Coating**

Heat slowly in electric mini crock pot

(If the gel boils it's ruined. Turn off after coating plates)

(Do not use a fast heating device. It will ruin the emulsion)

Fill ladle with emulsion

(Use a stainless steel spoon to skim bubbles off surface before pouring)

Ladle emulsion onto center of plate

(Hold the plate waiter style with one hand & pour with the other)

(Try to cover 80% of the plate with emulsion in the center)

Tip plate to each corner allowing the gel to move slowly and not drip over the sides

(Use two fingers to smear gel if spots are missed as you tip to each corner)

Pour excess back into emulsion until stream turns to drips

(Keep plate vertical: Do not allow gel to run back onto the plate

The coating is only as thick as what is left on the plate after pouring off & what drains off as it dries vertically. Do not level until the plate is ready to expose!

The coating will seem so thin that it will look as if the plate is clean with no gel at all. That is actually the correct amount. Thick gel will expose slowly, and blister off the plate when drying.)

Place drip edge on paper towel and allow it to soak up the brim

(Keep moving it to a new spot on the paper towel. When it starts to slow down it is ready for drying)

Use a paper towel to wipe off any emulsion that may have spilled onto the back

**3) Drying I**

Fan dry until dry to the touch (25 min)

Flip the plate & fan dry (10 min)

(This step is to allow the gel berm at the button to dry)

(The plate is done drying when the berm on the edge is dry enough that it won't stick to the paper during printing).

(Do not over dry. The plate should have a clear dry film, not chalky or crystallized)

Inspect gel for crystals, bubbles and uneven coating

(If the coating is bad, the plate is not worth printing)

(Use a razor blade to scrape off any over spill on the back, especially around the berm. Then use half of a damp paper towel to clean the over spill & the dry half of the towel to dry it)

**4) Exposure**

Print until solarized

(Expose until the contrast of the blue gel and the black of the print are equal, or until the emulsion stops reacting to light. The emulsion should be smooth and free of "gelatin stops". See *printing defects*.)

**5) Wash I**

Fill a developing tray with cold tap water. Ice may be used to cool the water a bit colder than tap water, if you're having weak gel issues. Lower the top of the plate into the water at a 45° angle, so it touches the bottom of the tray. Now, lower the rest of the plate into the bath, letting the water slowly cover the plate until it is horizontal in the tray.

Wait 10 seconds. You should see the highlights lighten, and the shadows turn dark, but remove it if you see the highlights losing detail.

Slowly raise the plate up at a 45° angle, and raise the plate out of the bath. Let the water pour off the plate at this angle until the water running off the plate slows from a stream to drips. Now raise the plate up vertically and allow the last few drops of water to leave the

plate. (The first wash is only used to harden the gel. Do not expect to remove all the green at this point.)

6) Drying II

Fan dry vertically

7) Wash II (Desensitizing)

[White light]

Soak the plate in a tray of water and agitate it 30 sec

Wash with cold water under a faucet 30 sec

(The gel should be very strong at this point)

(Use the faucet's stream to work out a bit of the green & purple tint)

Place the wet plate in a white developing tray, and allow direct sunlight to shine on the plate

(The white tray acts as a reflector)

(The sun light will clear the purple and green in 1-2 minutes)

In room light, soak the plate in distilled water and agitate the tray 30 sec

(This removes hard water spots from the final plate)

(The contrast of the plate will increase slightly, when it starts to lighten, remove it from the water)

8) Drying III (Final drying)

Fan dry vertical

9) Cleaning

When the plate is dry, place the emulsion side down on a dry towel and clean the glass side with a small towel soaked with Windex glass cleaner.

10) Framing

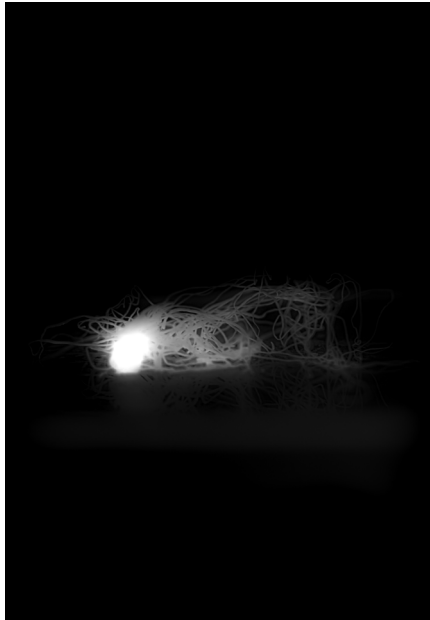
Frame glass side out, backed with white paper. Pack the frame so the paper is pressed tightly against the glass or the image will appear blurred.

Notes:

Heating the emulsion above melting temperature causes the cyanotype to form large crystals to form in the emulsion (See printing defects: snowflake crystallization).

Oxalic acid (ox-al-ic), hydrogen peroxide baths seem to have no effect on removing the purple tone from the plates

Tartaric acid (tar-taric) can be substituted for Oxalic acid in a cyanotype recipe





Garlic  
as a guide to  
create  
sensitive  
human  
spaces.

Reviving<sup>1</sup>  
Frequencies



A special garlic planted by me, a simple human, grows. It wasn't supposed to grow because it is only supposed to grow in Croatia, where it originates from. It grew and it grew without a light frequency reaching its root. A light sensitive chemical, usually used in cyanotype processes, applied to glass, caught the light, it gained a special shade of blue. This chemical isn't supposed to stick to the glass. With a little help from gelatine, it captured the filtered light.

The story takes place in a box. This box can be viewed both metaphorically and literally. The box is a human intervention in the organic space, it disrupts the natural order but on the other hand it provides life. This is place that tracks time, every day and every night, it tracks the concept of time as well as simple process of growth.

Its characters can be seen as metaphorically and as literally as their environment. The story gives space for dialogue between the three. The garlic, the light and a human.

Light, a holder of agency that escapes our intentions for it to be held. Human, individual who has lost connection to the larger ecological environment-the one who uses own body as the memory bank of that connection. Garlic, a representative of both sides, human and light. A deeply subjugated subject placed into an artificial environment.

Fascination with garlic goes back to the kitchen.

I wanted to know, what else than the strong odour, a significant taste, does this plant contain, why am I making it a part of almost every dish. For me garlic holds power, it holds power over all of us because we are creatures of pleasure.

Working with garlic has taught me a lot of things about care.

About how simple the act of planting is, how easy it is to give life, to continue life. I wanted to understand the small being, to understand how to treat it, how to provide it with conditions it requires. I held and still hold so much power over it. However, its life cycle is what holds power over me.

A small heads up, a note to whoever got this far. I aim to treat this text in the same manner as I treat my garlic; filtered, structured, charged with the personality of experiencing time, charged with emotion and presence. Skin, clove, stem and root of the garlic are the structures I wish this text will mould into, with significant odour peaking through the written pages. Therefore, this topic and these written pages have been taken care of, watered, freshly trimmed and repotted. They are a documentation of thinking and understanding, the process, the personal position of a human being, organic and inorganic at the same time. This text is a box that tracks time, time of unravelling. I hope you will dare to take the skin off, I sure took mine several times.

The perception of the world around us is heavily influenced by our senses and abilities to recognise them. Each sensation is an open door for the new story to unravel, new life. But we created a world so sterile, so senseless. We move through the space in obtained rhythms in obtained forms, we are planted in our reality in a box where conditions are created to stimulate our growth.

Where did the unexpected go, who is in charge of it?  
Can we be the ones in charge, can we change the box?

For a long time we have subjugated those around us, organisms, phenomena, laws. The topic of light, now by human intervention, light is dethroned from its natural status and became a controlled variable, under scientific calculations.<sup>1</sup>

Light is as crucial to us humans as it is to plants and other living beings. Photosynthesis is a well known process introduced to us through studies of biology and chemistry. This process sustains complex life on earth, it sustains our kind amongst other organisms by its final compound taking form of precious, breathable oxygen. Light which is the main agent in reaction, the main stimuli, is the one who dictates outcomes and holds every single one of us in its hands.

Therefore, I am asking myself constantly, can we change the notion of light, can we change its behaviour and still maintain the life. But, haven't we done this already in designing artificial spaces?

We are constantly finding ways to redefine and reinvent our environments in order to create spaces where accessibility, durability, productivity are embraced. Our spaces are not simple, they carry a significant social and political background. Our spaces reflect systematic values and propose a narrowed sphere of possibilities to create our lives. Moulding environment in this way has forced us to change the natural occurrences in the ways that bring the most benefit out of our systematic existence . We are constantly practicing power over them. On the other hand, we are fragile to the lack of them. This speaks about fragility of our society and its urge to distance from nature.

Our sterile surroundings have lost the meaning of importance, creating more systems that impose value over exceptions.

The garlic, under EU protection is synthesized by human. We have a connection. Both subjects of nature, light and garlic, have been synthesized by human and "migrated" from one meaning into another.<sup>2</sup> Therefore, I wonder, how can we learn from the ones we subjugated in order to create spaces that are more sensitive, spaces that impose observation, care and allowance.

Authenticity is imposed upon certain species through categorisation as our behaviour infringed the natural flow. We aim to protect what we once disturbed, to give it space for growth. We create environments, protect areas, give instructions. How is it authentic? How can we become less contradictory?

Our lack of perception towards the surrounding environment is rooted in our inability to understand it. This lack of understanding simply comes from the lack of representation of the voiceless ones. Their notions are almost invisible to the fast human eye.

Garlic has been around for quite some time and is amongst the oldest known horticultural crops. This small plant is naturally originating from Central Asia with its appearance dating back to 5000 years ago, where Egyptian and Indian cultures referred to its ways of planting and consumption.

Our perception of plants and their ability to perceive the world around them has changed rapidly through history.

Aristotle's dogma that plants have souls but no sensation lasted through the Middle Ages and into the eighteenth century, when Carl von Linné, grandfather of modern botany, declared that plants differ from animals and humans only in their lack of movement, a conceit which was shot down by the great nineteenth-century botanist Charles Darwin, who proved that every tendril has its power of independent movement.

As Darwin put it, plants "acquire and display this power only when it is of some advantage to them."<sup>3</sup>

The lack of movement can hypothetically be seen as inability to take power over one's existence. Due to garlics asexual propagation, relatively small numbers of garlic clones, perhaps numbering only a few thousand, have been in the hands of growers around the world through most of history. Through method of fingerprinting crops, a method used to determine new genetical varieties of the organism, we are able to understand how the plant has been migrated over lands, overseas. It offers understanding into how humans have migrated in the space and time, offering understanding of our own history and its values.

We have been in charge for moving those whose movement we are unable to perceive, but they accommodate to the surroundings shifted by us. This is an immense quality, a quality human society may not contain.

Sharing my origins with the Red Istrian Garlic is a privilege, of sort. Istrian red garlic from the outside does not look red, but the strong dark red color of its cherries can be clearly seen through the white outer shell. This variation of garlic plant is heavily present in Istrian vegetable culture as an indigenous species in this specific region of Croatia and is mainly grown on small farms.<sup>4</sup> Now, tradition as well as traditional cuisine hold a significant role in Croatian culture. Maintaining tradition and engaging with it is crucial not only as a way to feel connected to our roots and learn from the old. Tradition and authenticity offer the culture a possibility to flourish in the main industrial sector, tourism.

It is not simply about nourishing what the land we inhabited and knowledge we acquired. The authenticity and traditionally becomes a currency.

The Association of Producers of Istrian Garlic was officially founded in Pazin, capital of Istrian region, on February 17, 2018. The initiative to form an association of garlic producers was quick to come to fruition, and its members are now looking to launch an official procedure for the Istrian garlic to be granted the Protected designation of origin or the Protected geographical indication status by the EU.<sup>5</sup>

Protected designation of origin (PDO) identifies products that are produced, processed and prepared in a specific geographical area, using the recognised know-how of local producers and ingredients from the region concerned. Every part of the production, processing and preparation process must take place in the specific region.

Protected geographical indication (PGI) is, however, less strict. PGI emphasises the relationship between the specific geographic region and the name of the product, where a particular quality, reputation or other characteristic is essentially attributable to its geographical origin. Furthermore, PGI verifies these products even if only one stage of the production is taking place in the place of the region.<sup>6</sup> This methods are used in order to confirm authenticity of product and protect production areas, economic value as well as its consumers.

To make it easier to understand, I will try to explain what would this mean in the context of the red garlic growing in my box on the tiny balcony amongst heavy rains of Netherlands.

I have been given 2 cloves of Red Istrian Garlic on 1st of October 2021. This cloves came carefully wrapped in the suitcase of my mother who has spent weeks tracking down local garlic farmers from the region. From the moment I have planted this garlic, it stopped being Red Istrian Garlic. If I wanted it to be protected and found in PDO system, to hold the same economical value, it would mean that I would have to go to Croatia myself, plant it there in traditional way, under typical weather and environment conditions. It would mean that I would need to follow a "manual" of care that has been created by its preexisting harvesters.

My journey of planting and growing has started with questioning whether a plant this specific can grow in an environment far from its usual and in case it does, how well can it mature, can it still hold its original proprieties. What can be considered its original proprieties after all?

Twelve crops have developed in the period from October till January. They have yet to mature fully from single cloves to bulbs, a process that will further continue taking place in the spring time. However, the success of my initial plan has proved my starting point.

We are unable to control life, we are unable to create a "protected" type of life or disable life in case it is not following our standards, our systems. Nature will nurture when given space and time, it will nurture in its most organic ways.

My approach towards this project has been rather different from the usual. The dialogical importance has directed the view upon specified subjects as co-creators of the work. I desired to provide them with tools of shaping the work in the way they are able to, to treat them as equals in the process.

The methodology slowly embodied shape of growing, allowing the process of creating to become the subject matter of the work. I did not only become a maker, but a provider of tools for the voices to be heard.

## Growbox

In the current we are facing the shortage of land required for production of food. Large natural environments are harvested, artificial production is encouraged through introduction of greenhouses, indoor vertical farms, experiments with growth are a common in laboratories. This heavily controlled environments prioritise design and maintenance with desire to bring the most quantity and quality out to the world.

Artificial characteristics of spaces find their roots in nature. To produce a piece of nature we need to understand how it has been sustaining itself on its own. Sounds familiar, no? Temperature, air, nutrient solution, humidity, carbon dioxide, light, just a few variables we needed understand in order to replicate and control. This specifically has nurtured the design of the Growbox.

Three separated compartments, each containing four garlic cloves started as a base. The aluminium sides hold the ground, the crops, the water, while being contained in an outer frame whose sole purpose is protection of the crops from uncontrolled conditions. The back and the sides of the frame are left open, allowing the air to circulate, while the front slightly differs.

Knobs mounted on the front carry the weight of different coloured gels, usually used amongst photographers, to achieve coloured lightning. By filtrating natural lightning, very grey if we speak about The Netherlands, these filters allow each of the three compartments to become landscapes of light and its frequencies. The Growbox is not anymore only the home of garlic, it is a home of filtrated light.



## Light Frequencies

First there was darkness, and then there was light, something like that. We are surrounded by it constantly, there is no escape, there is never pitch black. We rarely pay attention unless there is a lack of it, we rarely give it a second thought.

Firstly, let's define light. Light or visible light is electromagnetic radiation within the portion of the electromagnetic spectrum that is perceived by the human eye.<sup>7</sup> Perhaps the most important characteristic of visible light is colour. To come straight to the point, difference in frequency of visible light equals difference in energy light at the certain point in the spectrum contains, therefore, red, blue, green, yellow, purple, orange emerge.

Without disregarding other properties, colour is as crucial for us humans as it is for plants. It can drastically affect the state of our emotional and physical wellbeing. Its time and space matter. We for sure have this in mind whilst creating our own.

Certain studies have shown how certain light frequencies can benefit the growth of plant and therefore the knowledge has been applied unmistakably in our artificial growing environments. Blue affecting the early, fragile root, red strengthening the leaves, violet enhancing admirable colour and taste while yellow and green are making sure that enough chlorophyll is there.

I just wondered, what would happen if one was not there, what would happen if one of my garlics grew without the blue, the violet. Would the bulb still attract me as the one I originally planted?

Growbox has the power to eliminate certain frequencies through attaching the different colour gels to different segments in its design. It has the power to create a difference between those who originated from the same. Maybe it will happen, but we will know only if we are patient enough to wait till the spring.

## Cyanotype

However, what we perceive with our human eye is just a small part of the far reaching spectrum and its properties. In physics, the term "light" may refer more broadly to electromagnetic radiation of any wavelength, whether visible or not.

Our culture is rather visual, primarily visual. Since the beginning of communities, drawings, paintings, symbols have been used in order to transfer information, to captivate the message. With larger understanding of laws of nature, we were able to create and develop further, giving birth to photography. Photography can therefore be seen as a medium representative of this hybrid aspect. A piece of science that produces art.<sup>8</sup>

I desired to understand photography in its core, to understand what makes it possible to create the image, that being, light. Now, to photograph light is not as easy as it may sound, to give it voice is even harder. The fragility of light and the inability to preserve it, fixate it, has directed me further towards old techniques of wet plate emporium, cyanotype on glass to make it more understandable. We go back to light spectrums.

Cyanotype is a photographic printing process using chemicals which, when exposed to UV light, produce cyan-blue prints due to photosensitivity of the solution. The organic surface is necessary for absorption of solution, and glass certainly isn't one. Glass and its transparency, fragility, origin, requested dialogue with me.

In order to produce cyanotypes on glass, the sensitive solution had to be mixed with gelatine, a controlled compound derived from nature. The process became a growth, a learning pathspeaking of my persistence to bring together organic and inorganic, speaking of human persistence of invading the environment and its organic state. Glass plates became a voice of light, an ability to capture it in the core of what it actually is, unrepresented by anything but the shade of blue it has created.

These glass plates became a way to track time, to document the change in the Growbox environment, the natural change as well as the change that was firstly forced upon through filtering the coming rays of sunlight.

Artificial space I have created became a frame of reference, it allowed me to understand and recognise the notions of subjugation in our own, everyday environments.

Life is possible under artificial conditions, under conditions that are both in and out of our control. The questions about the authenticity of the grown garlic crop arise as it is surely not grown accordingly to EU standards and in that sense originally authentic plant cannot be granted its status. It opens questions about control. We are working for it and against it, but maybe all that is left to realise is that we are figures of a structure so large that it leaves us motionless. However, our roots, leaves and stems can grow, we can blossom, all that is required is to remind ourselves that edges of the glass frames are not final points.

This work speaks about time, preservation, isolation, sensibility. It speaks about my need, human need to materialise, to fixate. I was growing the process in order to learn. Each part became a stepping stone towards the end, towards maintenance and documentation. It is my connection to the process, a dialogue with the small ones, it is me changing between the roles of a maker and a subject. It is the power play, of rules, boxes, of expectations. It is about stopping the transition, giving the audience the ability to continue the process. It is experiencing the body as power of action and reaction.

1 Cited from conversation, Trang Ha, artist (Further under \*)

2 \*(1)

3 The Secret Life of Plants, Peter Tompkins, Christopher Bird; pg 9.

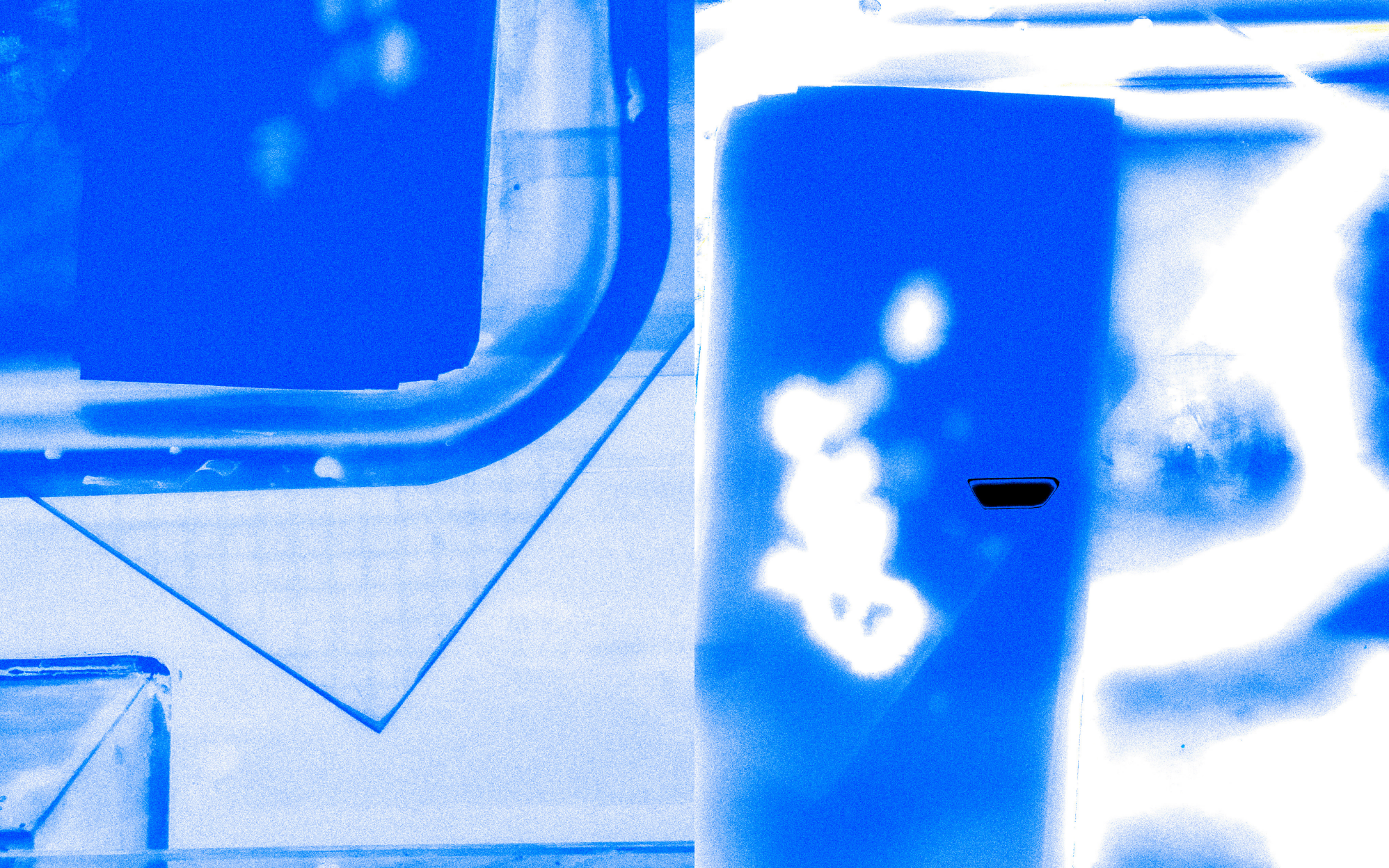
4 Slow Food Foundation for Biodiversity/ Ark of taste/ Istrian Red Garlic

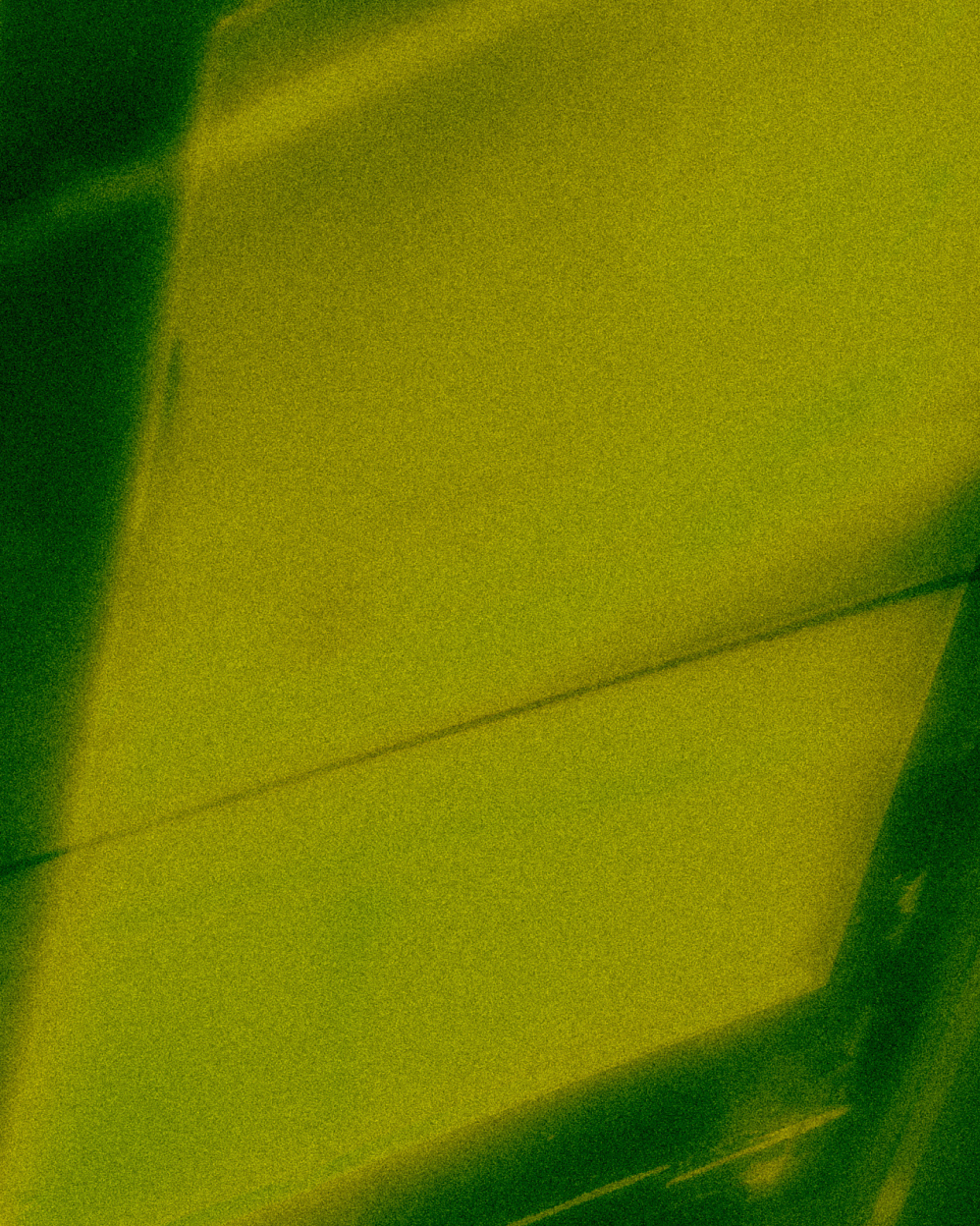
5 "White Gold: Istrian Garlic to Get EU Geographical Indication Protection?", Nikolina Demark, 17 February 2018

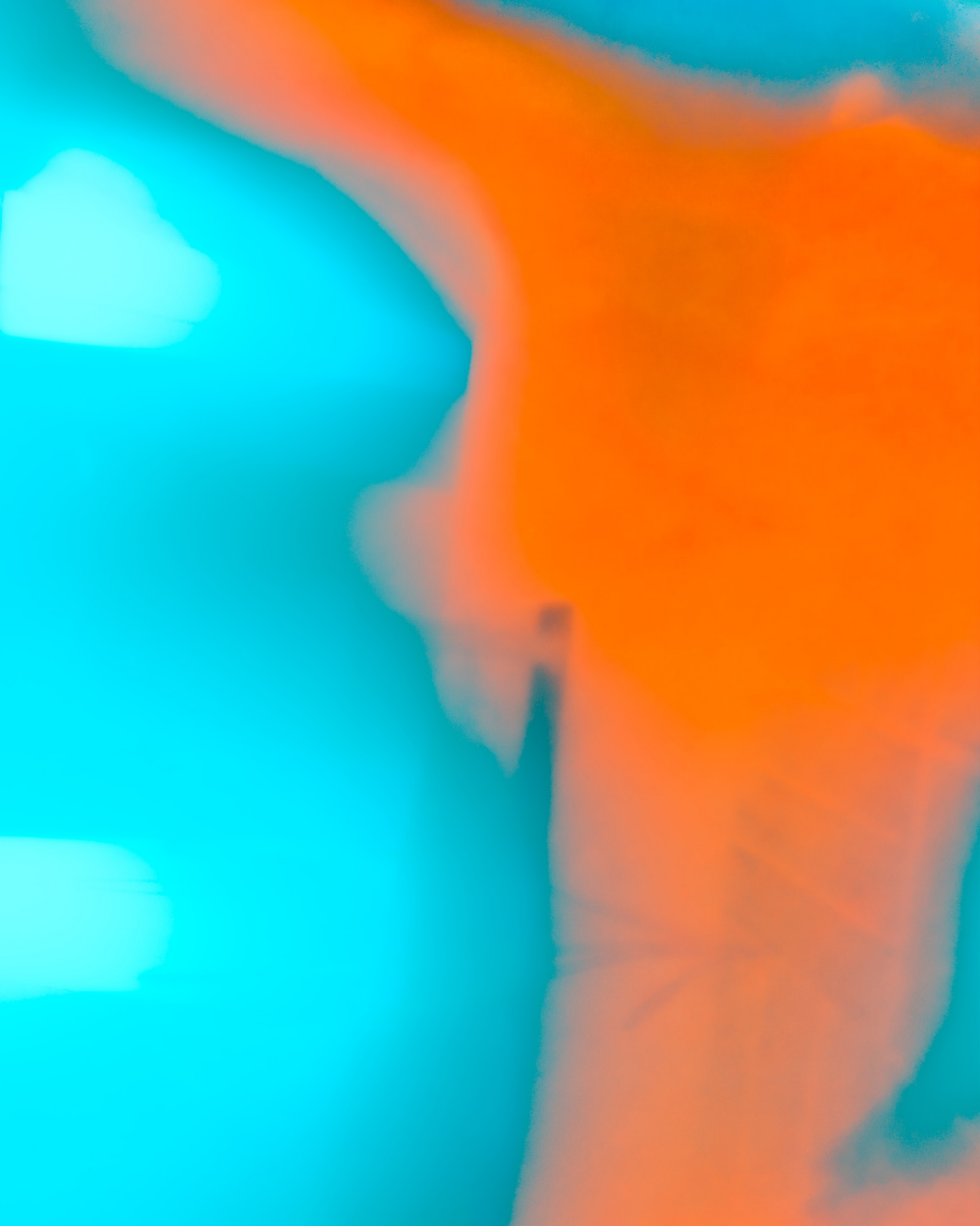
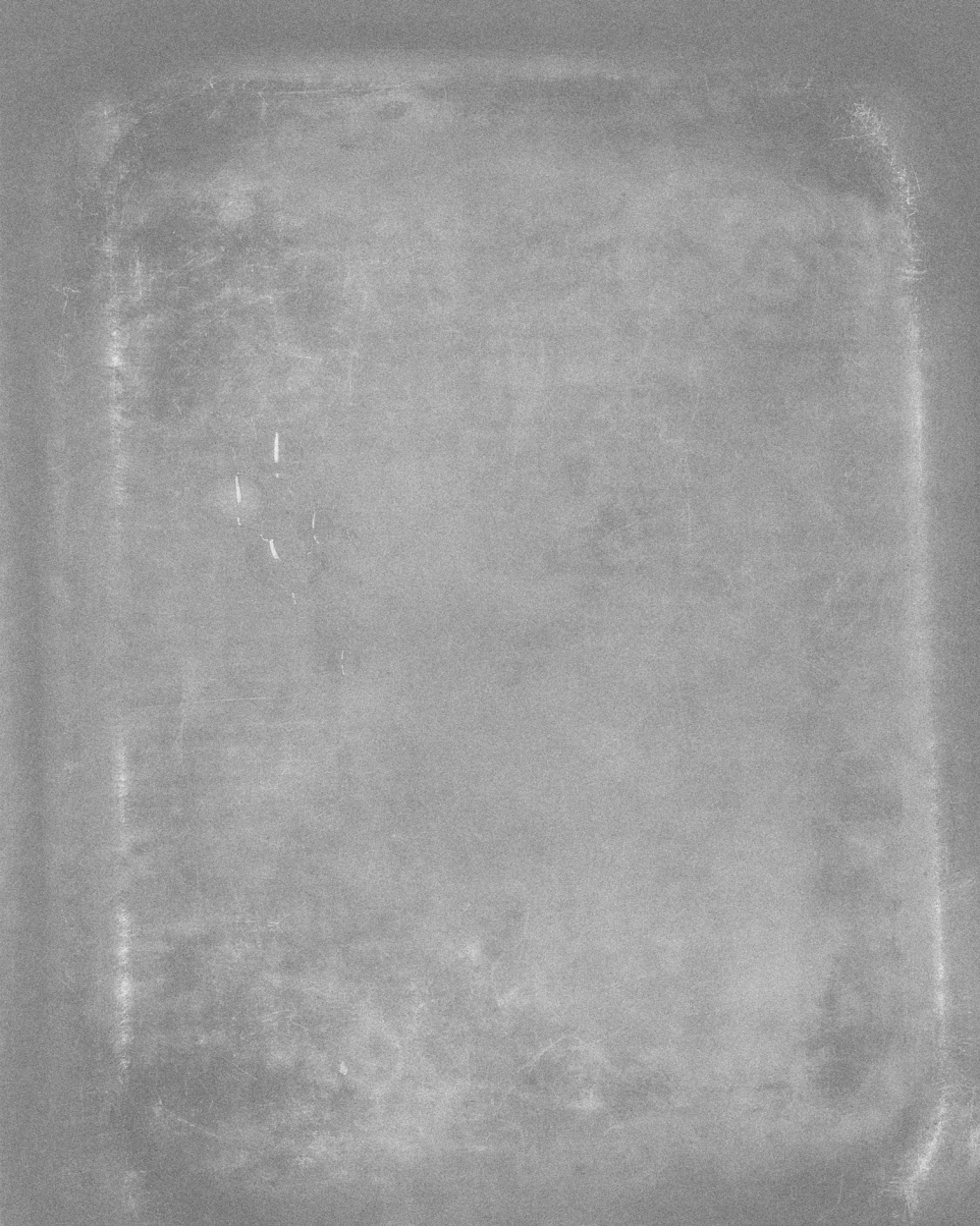
6 Benelux Office for Intellectual Property (BOIP)/ Designations of origin, geographical indications and traditional specialties

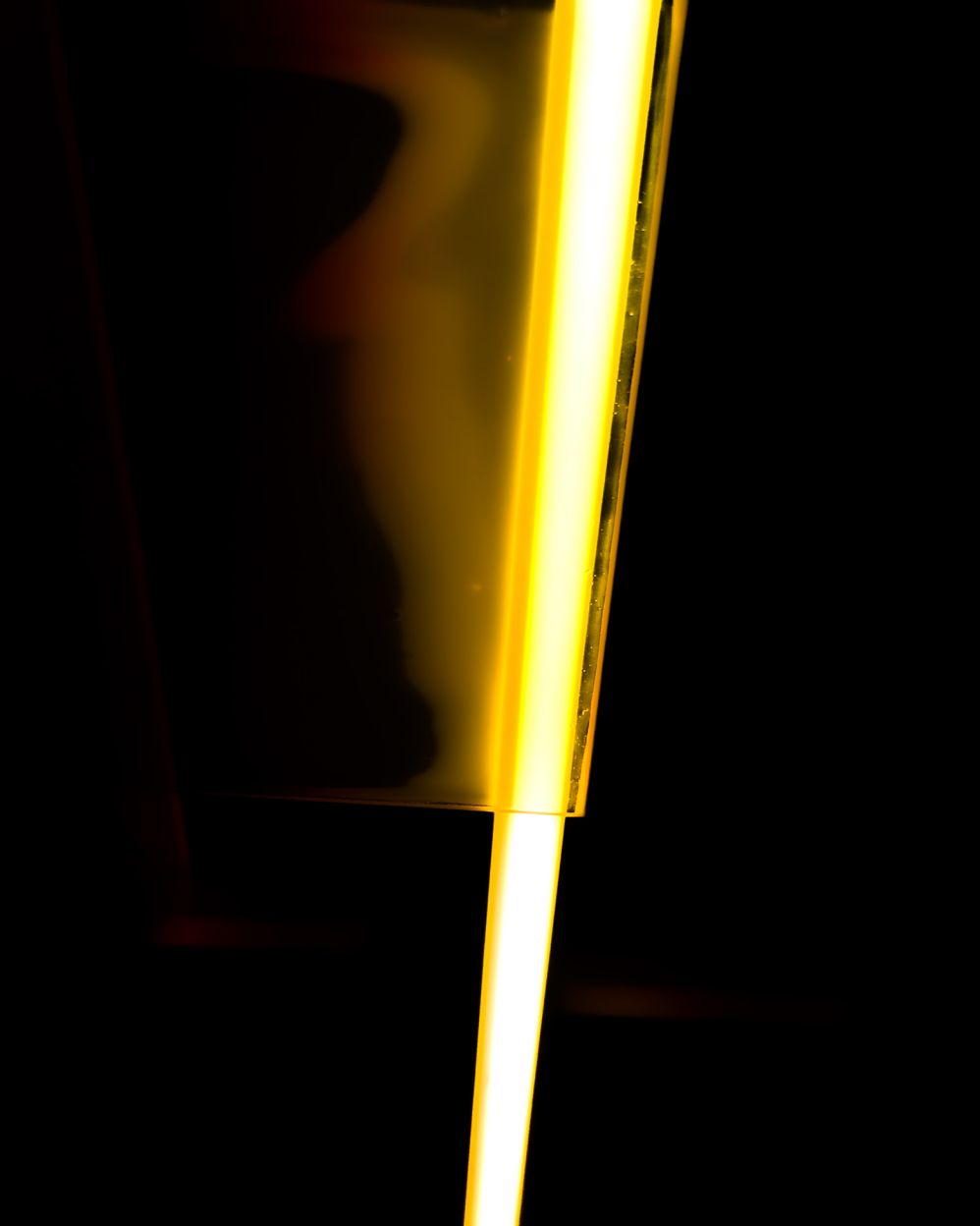
7 International Lighting Vocabulary

8 \*(1)







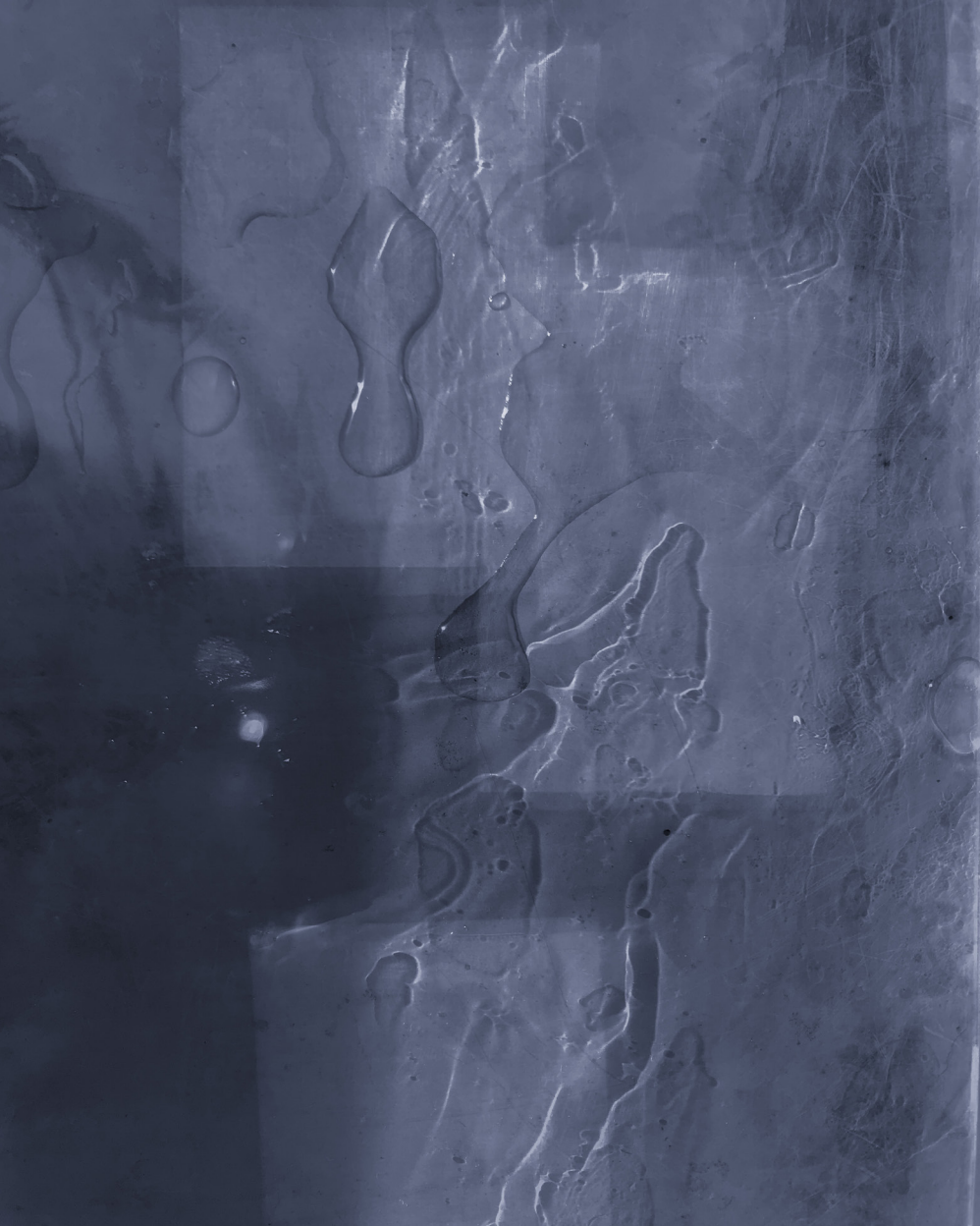




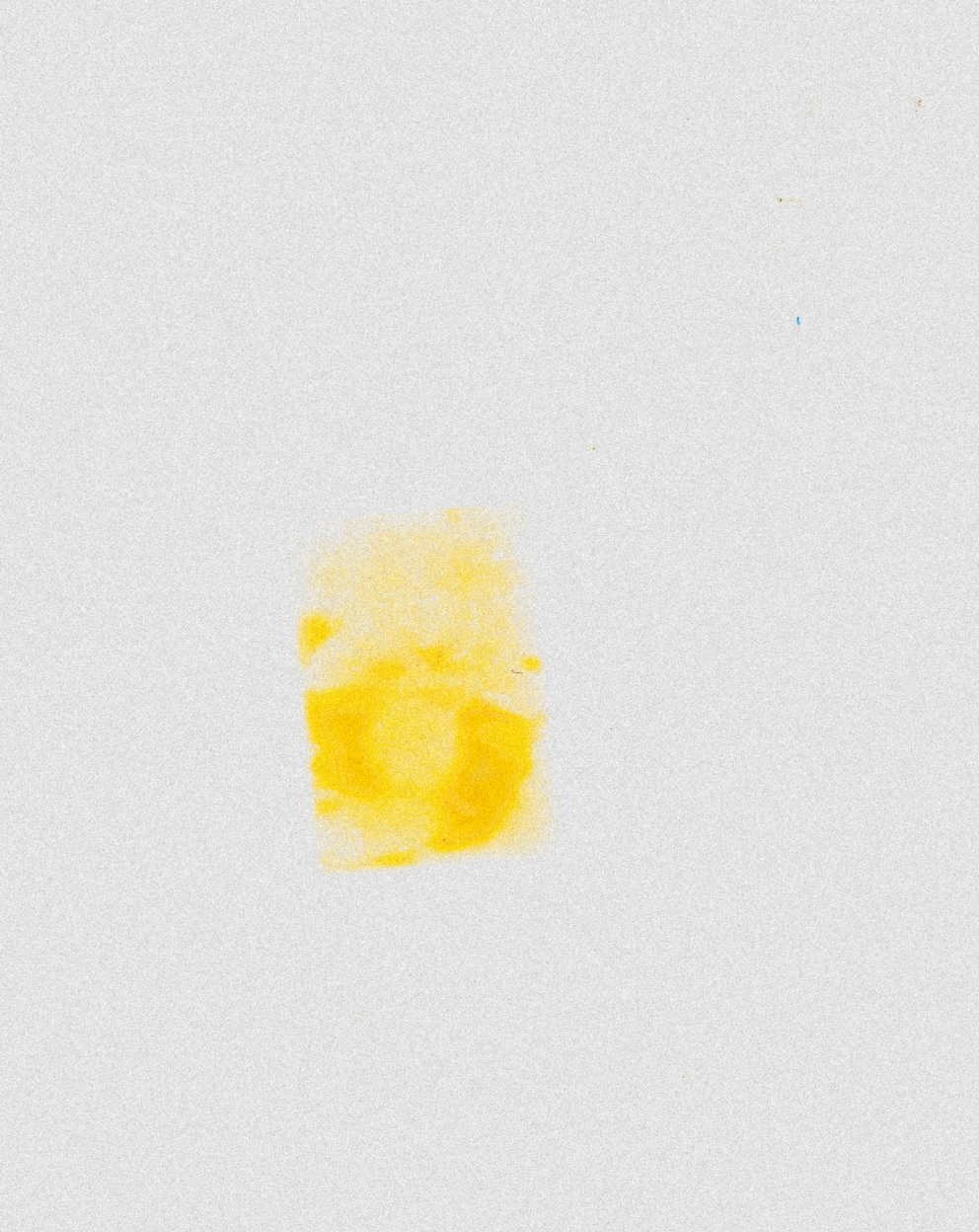


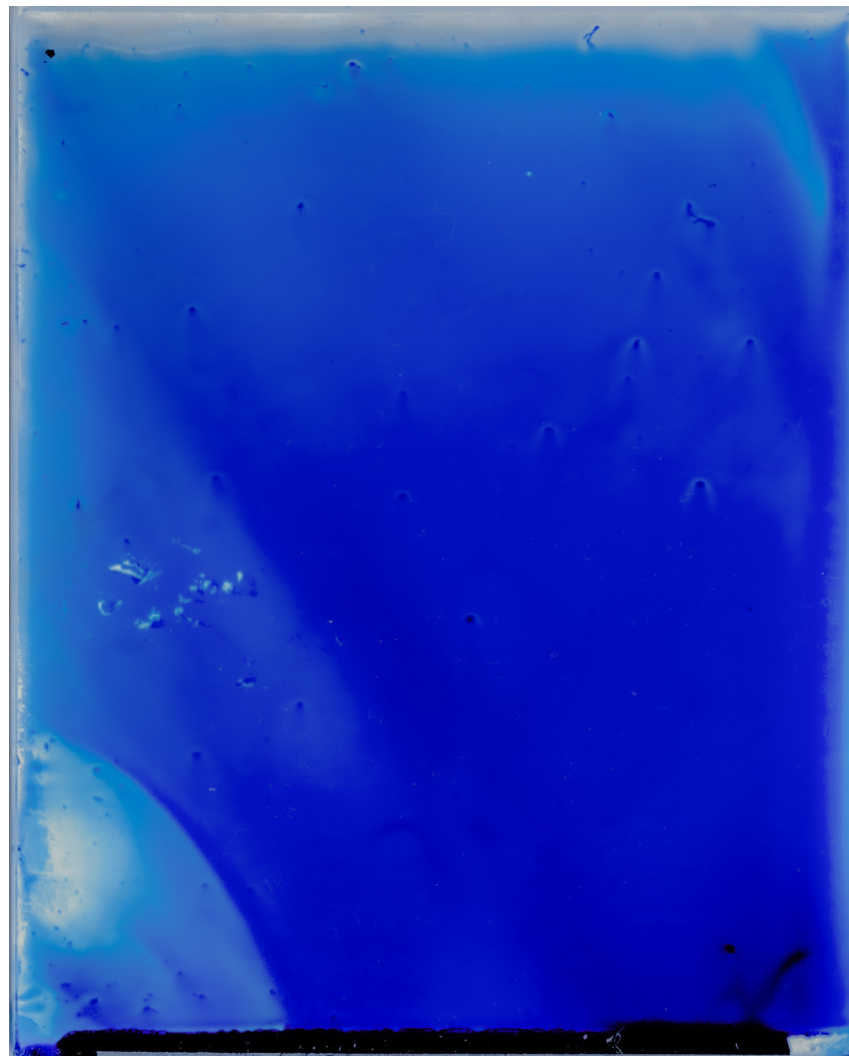
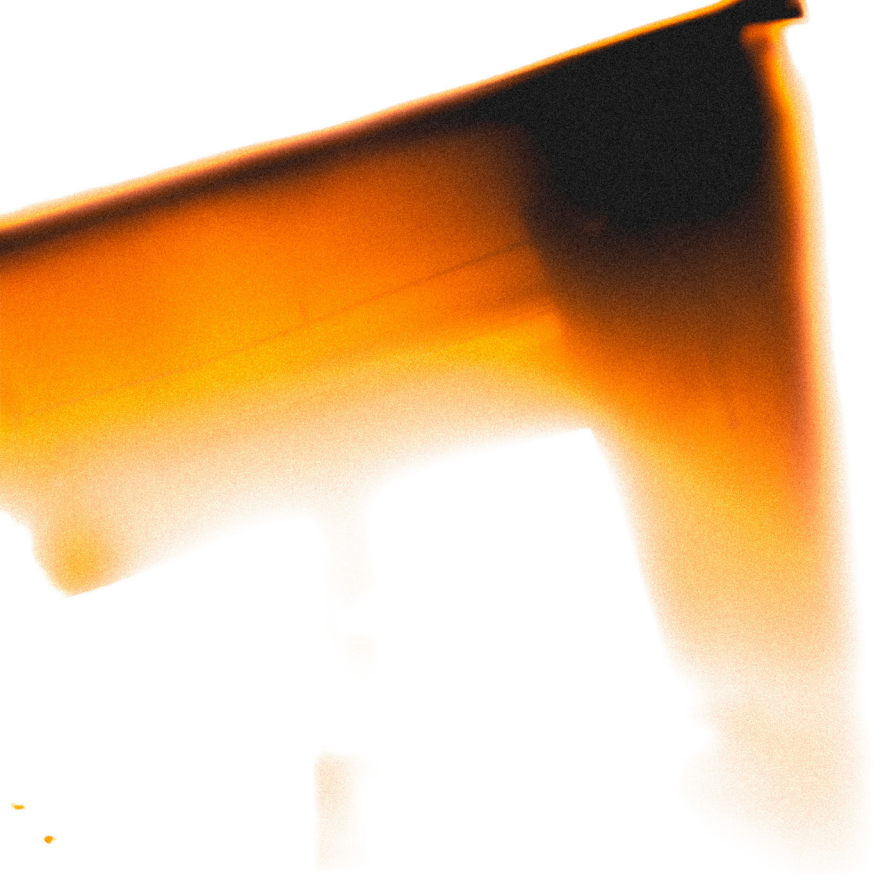


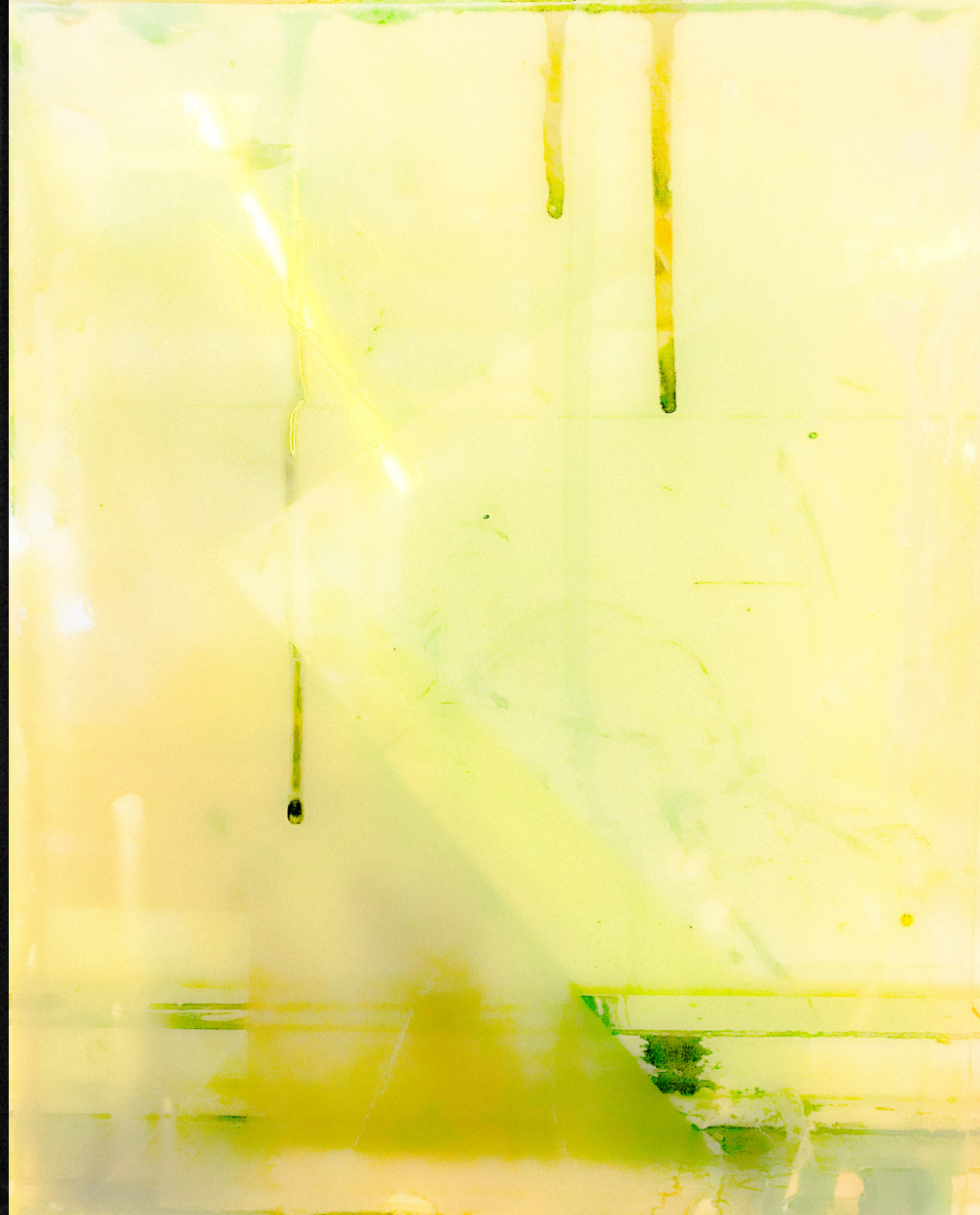




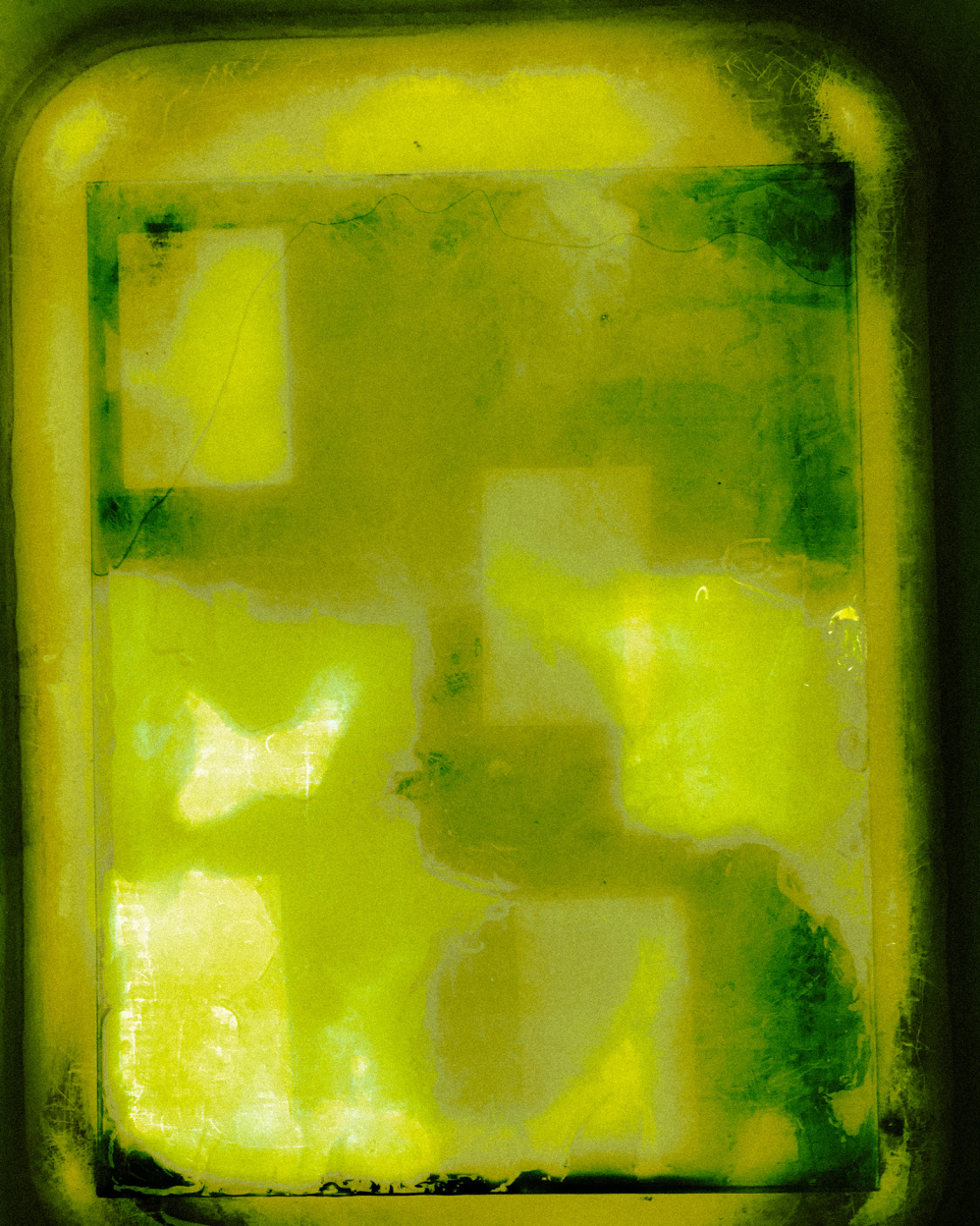
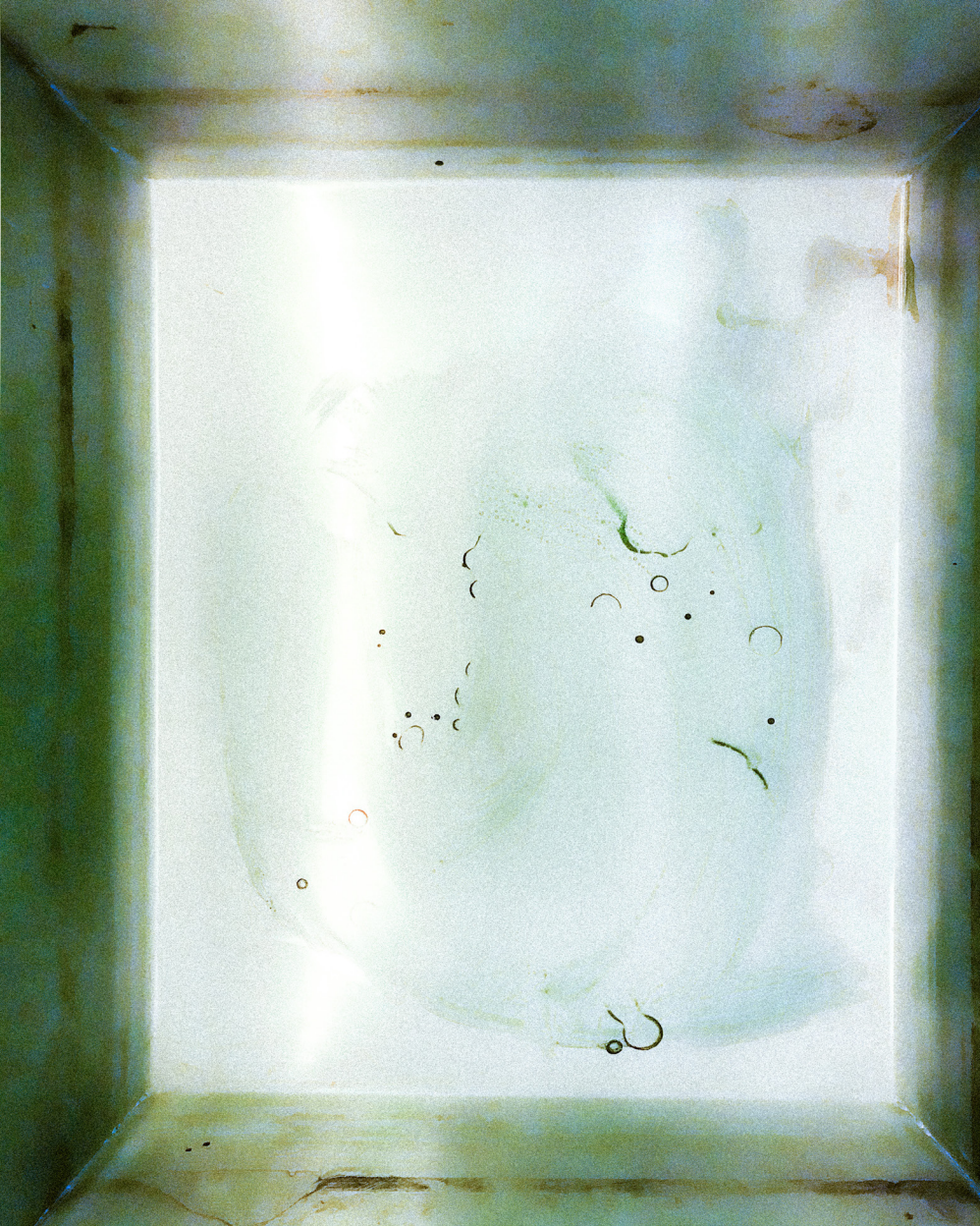




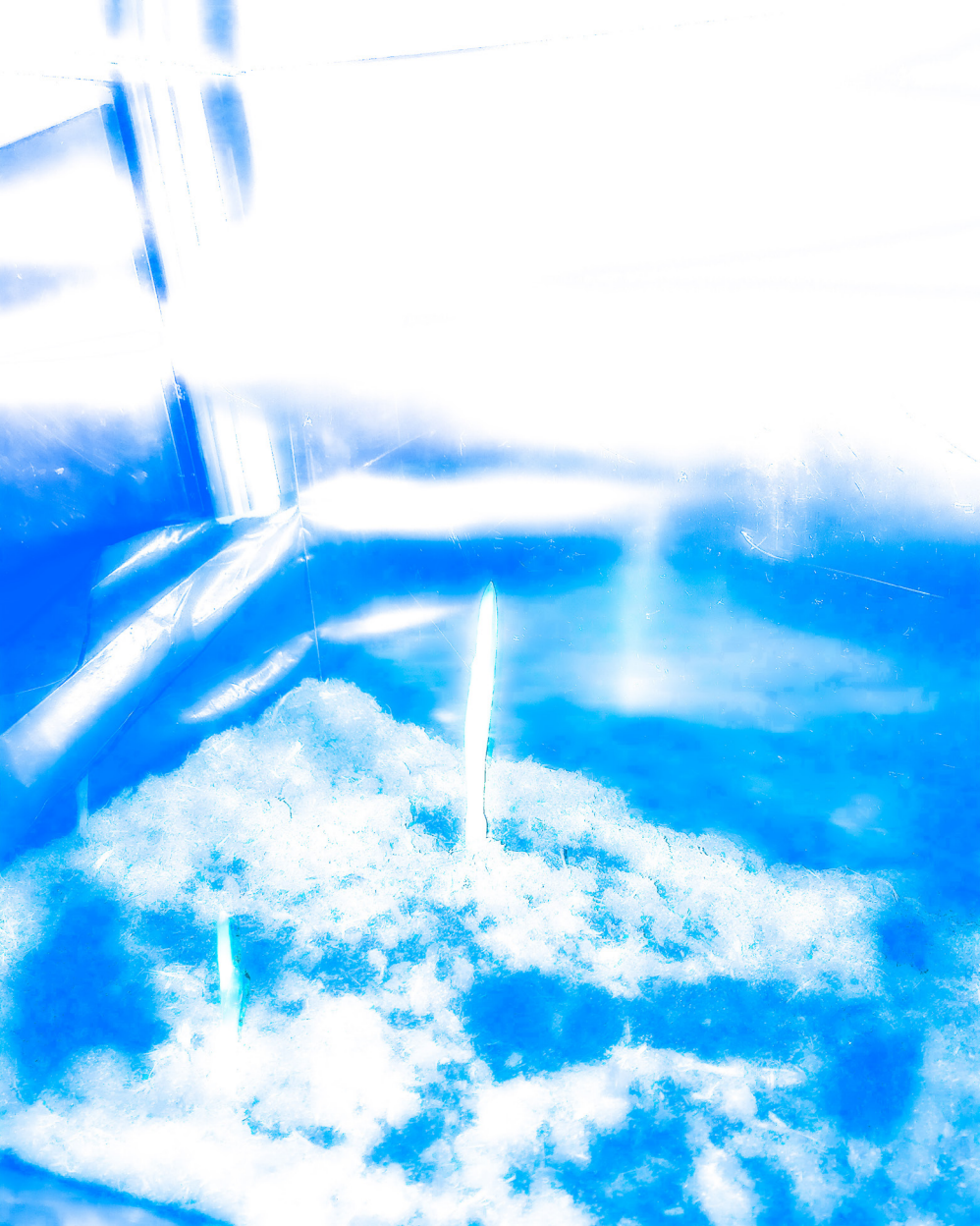












#### Colophon

Dora Ramljak  
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dora.ramljak@gmail.com

