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BIOKOD

Projekat "BIOKOD" proističe iz uspešno realizovanog projekta "BIOFABRIKA" koji je podržala Evropska Prestonica Kulture - Novi Sad 2022. Rezultati projekta ukazali su na to da je neophodno raditi na edukaciji mladih kako bi ih bliže upoznali sa aspektima i mogućnostima primene materijala biološkog porekla u umetnosti i biotehnologiji. Tako se rodila ideja za projekat BIOKOD, koji bi se bazirao na umetničko-naučnim i istraživačko-edukativnim radionicama u saradnji sa **Prirodno-Matematičkim Fakultetom (PMF) - Departmanom za biologiju i ekologiju i Mikološkom laboratorijom "ProFungi", Naučnim Klubom u Kulturnoj Stanici Svilara i MMC Led Art - galerijom „Šok ZaDruga“** u Novom Sadu.

Inicijalna ideja projekta BIOKOD je sticanje novih i produbljivanje postojećih teorijskih znanja i praktičnih veština učesnika i korisnika projekta kroz predavanja, radionice, kreativno istraživanje uz rad sa mentorima, otvorene razgovore i izložbe, implementirajući važne teme zasnovane na bioetičkim praksama u sferi savremenog umetničkog stvaralaštva i nauke. Osnovni cilj BIOKOD-a je da se kroz neformalnu edukaciju ukaže na prednost upotrebe biomaterijala kao bezbednih i održivih opcija i istakne njegov potencijal u zamenu za štetnih materijala koji narušavaju našu životnu sredinu.

Umetničko-naučno istraživanje biomaterijala na bazi mikroorganizama odvijalo se u vidu radionica koje su bile dostupne studentima biologije na Departmanu za biologiju i ekologiju, Prirodno-matematičkog fakulteta, a uključivale su i samostalni eksperimentalni rad u kućnim uslovima. Mladi učesnici projekta su imali priliku da se tokom teoretskog dela radionica, upoznaju sa novim terminima i pravcima savremenog stvaralaštva, sa

osnovama biologije i ekologije mikroorganizama odabrane mikrobne zajednice (SCOBY – eng. symbiotic culture of bacteria and yeasts - srp. simbiotska zajednica bakterija i kvasaca) i njihovom potencijalnom primenom u umetnosti. Praktični deo radionica obuhvatao je pripremu hranljivog tečnog medijuma, uzgajanje zajednice mikroorganizama i ispitivanje produkcije biomaterijala (SCOBY) u različitim uslovima, vođenje vizuelnog dnevnika o kreativnom-istraživačkom procesu i dublje eksperimentisanje sa biomaterijalom uz mentorstvo **doc. dr Milane Rakić** - mikrobiologa/mikologa i vizuelne umetnice **Adrienn Újházi**.

Rezultati radionica su predstavljeni široj javnosti na izložbi u galeriji „Šok ZaDruga“. Tom prilikom, posetioci su imali prilike da se, kroz delove studentskih radnih dnevnika, fotodokumentaciju eksperimentalnog - radnog procesa i izložene prototipove, udube u mikro- i makro-svet novonastalih, održivih biomaterijala. Pored toga, mikroskopiranjem medijuma u kojem nastaje istraživana mikrobna zajednica posetiocima je omogućeno da stupe u interakciju sa živim ćelijama bakterija i kvasaca.



Nakon radionica, otvaranju izložbe je prethodio serijal predavanja namenjen učesnicima projekta i široj publici koji se organizovan u saradnji sa Naučnim Klubom, u Kulturnoj stanici „Svilara“. Tokom ovog dela projekta, predstavili su se stručnjaci iz oblasti nauke i umetnosti sa temama koje su dotakle različita bioetička pitanja u teoriji i praksi. Kroz bogat i edukativan sadržaj predavanja, posetioci su dobili priliku da se upoznaju sa dostignućima različitih naučnih i umetničkih disciplina koje se bave istraživanjem bio-održive prakse, razvojem biomaterijala i njihovom primenom.

U okviru predavanja su se predstavili: **prof. dr Maja Karaman** - sa svojim iskustvima iz naučno-istraživačkog rada sa biomaterijalima na bazi makrogljiva; **prof. dr Milan Matavulj** - sa rezultatima bogate karijere naučnika - mikrobiologa i akademskog umetnika koji se odnose na održivu - organsku umetnost; **Sunčica Pasuljević-Kandić** - koja se kroz višegodišnju praksu posvetila istraživanju brojnih izazova u kulturi, kao što su eksperimentalno mapiranje i umetničko istraživanje veštačke inteligencije kao i tehnološko-ekološkog pristupa budućnosti društva; **Darija Dragojlović** - koja u svom radu preispituje individualni i kolektivni uticaj čovečanstva na planetarni ekosistem, usled čega dolazi do modifikacije njegovog prirodnog stanja i mehanizama, te postaje upitna i njegova dalja održivost.

BIOCODE

The “**BIOCODE**” project stems from the successfully implemented **BIOFACTORY** project, which was supported by the European Capital of Culture - Novi Sad 2022. Based on the results of the project, it was concluded that it is necessary to further work on the education of young people in order to familiarize them more closely with the aspects and possibilities of applying materials of biological origin in art and in science. This is how the idea for the BIOCODE project was born, which would be based on art-scientific and research-educational workshops in cooperation with the **Faculty of Science (PMF) within the Department of Biology and Ecology and Mycological laboratory “ProFungi”, the Science Club at the Cultural Center of “Svilara”** and the **MMC Led Art - gallery “Šok ZaDruga”** in Novi Sad.

The initial idea of BIOCODE is to acquire new and deepen existing theoretical knowledge and practical skills of project participants and users through lectures, workshops, mentorships, open conversations, exhibitions and creative research, implementing important topics based on bioethical practices in the sphere of contemporary artistic creation and science. The context of the BIOCODE project is based on the goal of highlighting, through informal education, the advantage of using biomaterials as safe and sustainable options and its potential to replace harmful materials that damage our environment.

The artistic-scientific research of the material was carried out through workshops that were available to students of the Department of Biology and Ecology, Faculty of Science, and the young participants of the project had the opportunity to learn from a theoretical aspect with new terms and directions of contemporary practices in the art studio, while the practical aspect of the workshops in a hybrid form included the preparation of a beverage

(kombucha), growing and testing the production of bio-materials (SCOBY - Symbiotic Cultures of Bacteria and Yeast) in different conditions, keeping a visual diary about the creative-research process and in-depth experimentation with biomaterials under the mentorship of **prof. Milana Rakić** microbiologist/mycologist and visual artist **Adrienn Újházi**. The results of the workshop with prototypes and diaries were presented to the public at an exhibition in the “Šok ZaDruga” gallery, where visitors had the opportunity to immerse themselves in the biological world of newly created and sustainable materials, as well as to interact through microscopy with living organisms such as bacteria and yeast.

After the workshops and before the opening of the exhibition, a series of lectures was organized for the project participants and the general public in cooperation with the Science Club at the “Svilara” Cultural Station, where experts from the sphere of science and art presented themselves with topics summarized through various bioethical issues in theory and practice. The rich and educational content of the lecture gave the visitors the opportunity to acquire basic knowledge about the disciplines of science and art, which reach sustainable practices, the importance of biomaterial research and its application in the modern world and in the future.

During the lecture, the following individuals presented their work: **Maja Karaman** with many years of work in the field of microbiological research and scientific experience in working with biomaterials; **Milan Matavulj** with a rich career as a scientist and artist related to sustainable art; **Sunčica Pasuljević-Kandić** has devoted many years of practice to researching numerous challenges in culture, among other, experimental mapping and artistic research around artificial intelligence as well as technological-ecological approaches to the future of society; **Darija Dragojlović** in her work examines the individual and collective effect of humanity on the planetary ecosystem, as a result of which its natural conditions and mechanisms are modified, and its further sustainability becomes questionable.

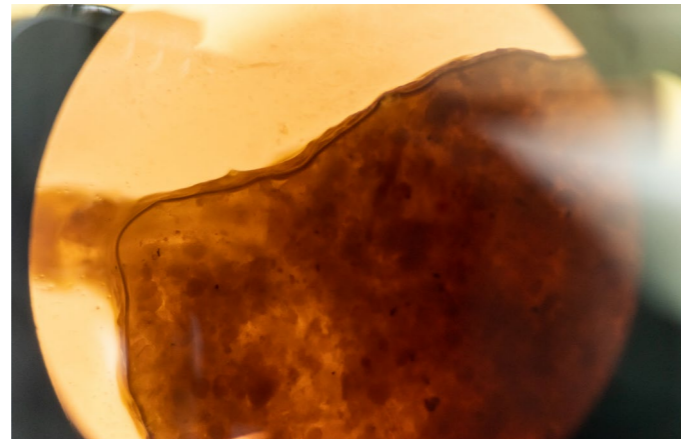


SKOBI

srp.
Simbiotska kultura
bakterija i kvasaca

Izraz SCOBY se najčešće koristi za biomaterijal na bazi celuloze koji nastaje kao rezultat aktivnosti mikroorganizama koji žive u zajedničkoj, uzajamno korisnoj zajednici u kojoj su njihovi metabolički procesi međusobno tesno povezani. U tečnom medijumu poznatom kao KOMBUHA, koji se sastoji od čaja zaslađenog šećerom ili medom i unetog startera (prethodno uzgojene simbiotske mikrobne kulture), kvasci i bakterije rastu i umnožavaju se koristeći dostupne izvore energije i hranljivih materija. Kvasci (vrste rodova *Zygosaccharomyces*, *Saccharomyces*, *Candida*, *Torulasporea* i dr.) razgrađuju šećere do alkohola i ugljen-dioksida, a prisutne bakterije (vrste rodova *Acetobacter*, *Gluconobacter*, *Gluconacetobacter*, *Komagataeibacter*, *Lactobacillus* i dr.) zatim dalje transformišu alkohol i preostale šećere u organske kiseline, u procesu poznatom kao sirćetna i mlečno-kiselinska fermentacija. Jedan od dodatnih proizvoda aktivnosti ove mikrobne zajednice je biomaterijal izgrađen od najfinih vlakana celuloze, koju neke od prisutnih bakterija formiraju na površini tečnog medijuma kao specifičan „štit“ – „biofilm“ čija je uloga zaštita mikrobne zajednice od nepovoljnih uslova u životnoj sredini.

Ova zanimljiva zajednica mikroorganizama u prirodi postoji već hiljadama godina, najčešće razgrađujući plodove voća, a ljudima je najpre postala zanimljiva zbog procesa proizvodnje hranljivog i lekovitog KOMBUHA napitka. U novije vreme, dodatno interesovanje privlači i sam SCOBY kao biorazgradivi materijal izuzetnih odlika koji pronalazi primenu u brojnim oblastima (u umetnosti, tekstilnoj industriji, biomedicini, prehrambenoj industriji, zaštiti životne sredine, i dr.)





SCOBY

eng.
Symbiotic Culture Of
Bacteria and Yeasts

The term SCOBY is most often used for a cellulose-based biomaterial that is created as a result of the activity of microorganisms living in a common, mutually beneficial community in which their metabolic processes are closely interconnected. In a liquid medium known as KOMBUCHA which consists of tea sweetened with sugar or honey and an introduced starter (pre-grown symbiotic microbial culture), yeasts and bacteria grow and multiply using the available sources of energy and nutrients. Yeasts (species of the genera *Zygosaccharomyces*, *Saccharomyces*, *Candida*, *Torulasporea*, etc.) break down sugars into alcohol and carbon dioxide, while the bacteria present (species of the genera *Acetobacter*, *Gluconobacter*, *Gluconacetobacter*, *Komagataeibacter*, *Lactobacillus*, etc.) further transform alcohol and remaining sugars into organic acids, in a process known as acetic and lactic acid fermentation. One of the additional products of the activity of this microbial community is a biomaterial built from the finest cellulose fibers, which some of the present bacteria form on the surface of the liquid medium as a specific “shield” - “biofilm” whose role is to protect the microbial community from unfavorable environmental conditions.

This interesting community of microorganisms has existed in nature for thousands of years, usually decomposing fruits, and it first became interesting to people because of the process of producing the nutritious and medicinal KOMBUCHA drink. Recently, the SCOBY itself has attracted additional interest as a biodegradable material with exceptional characteristics that finds application in numerous fields (in art, textile industry, biomedicine, food industry, environmental protection, etc.)





PREDAVANJE I

16. 10. 2023.

Naučni Klub (Kulturna
Stanica „Svilara“)
Đorđa Rajkovića 6b,
Novi Sad, Srbija

„RECIKLAŽA U UMETNOSTI“

Naša percepcija i spoznaja su definitivno procesi koji, bar za sada, ne mogu u potpunosti da se definišu algoritmima, niti da budu izmerena mernim vrednostima. Percepcija i spoznaja su kreativni procesi što znači da uvek mogu da nas dovedu do nečeg novog. Ako, dok posmatramo nešto, ne nalazimo ništa novo u tome, utisak je dosadan. Ako uspemo da proširimo svoje kognitivne, misaone strukture i zahvaljujući tome uočimo nešto što nije u okvirima naših prethodnih (iskustvenih) saznanja, imaćemo estetski doživljaj. Otud je osećaj lepote - osećaj uspešnog proširenja i produbljenja našeg perceptivnog, iskustvenog znanja. Ako je ono što opažamo suviše jednostavno za perceptivnu obradu, usvajamo ga i apsorbu- jemo bez kreacije nečeg novog, što rezultuje ravnodušnošću i do- sadom. Takođe, ako je proces percepcije i spoznaje nečega previše složen, ne uspevamo da asimilujemo viđeno. To takođe dovodi do toga da nemamo “osećaj postignuća” našeg perceptivnog sistema, što ponovo rezultuje odbojnošću i pasivizacijom, isključivanjem perceptivnih procesa. Ako smo, međutim, uspeli da uspešno inte- grišemo novo u naše postojeće spoznajno znanje, bivamo nagrađeni tim naročitim osećanjem - lepote.

Dakle, lepota može da se posmatra i kao nuspojava bazičnih funkcija našeg perceptivnog sistema učenja, upravo zbog kre- ativne prirode našeg saznanja i spoznavanja pojava oko nas. Najbolja umetnička dela su toliko bogata da mogu da iznova i iznova proizvode takva iskustva. I prouzrokovani osećaj lepote označava trenutak vlastitog napretka i duhovnog rasta, i zaista, na dobitku smo kad doživljavamo lepotu.

Senzibilitet za transformaciju otpadnog materijala i novi život koji mu se daruje, definitivno je ušao u život i umetnost. Posebno je inspirativan papir kao medijum za likovno istraživanje. Ko god je posegao za tim medijumom, na prvi pogled se zaljubio u papirnu pulpu zbog neograničenih izražajnih mogućnosti. Pitao sam se otkud takav odnos prema papiru? U suštini, radi se o celulozi, organskoj materiji koja u sebi sadrži fotosintezom zarobljenu sunčevu energiju. Zbog toga je rad sa tim materijalom, koji je sam po sebi topao i taktilan i kao organski veoma podatan, pogodan za oblikovanje. Promišljajući sve to, kada imate ovakav materijal, usudujem se da kažem da može da se govori o “organskom slikarstvu”.



PROF. DR MILAN MATAVLJ rođen u Banjaluci, 19. Marta 1948. god. Akademiju umetnosti završio 1988. godine u Novom Sadu. Slikarstvo studirao kod profesora Milana Staševića, vajarstvo kod profesora Tome Kauzlarića a istoriju umetnosti kod prof. dr Katarine Ambrozić. Diplomirao 1996. god. na odseku grafike u klasi profesora Živka Đaka. Član SULUV-a i SULUJ-a od 1989. god. Član Udruženja likovnih umetnika Republike Srpske. Član International association of art - (IAA AIAP) UNESCO od 1989. Član ULUS-a od 1997. god. Član Umetničkog bratstva manastira Tavna od 1998. god.; 2001 - 2005. god. Predsednik Saveza udruženja likovnih umetnika Vojvodine. Izlagao na preko 200 kolektivnih izložbi u zemlji i inostranstvu (Austrija, Mađarska, Belgija, Holandija, Engleska, Severna Makedonija, Republika Srpska, Hrvatska, Nemačka, Bugarska, Japan, SAD, Tajland).

„BIOMATERIJALI NA BAZI MAKROGLJIVA“

*(Maja Karaman, Nenad Krsmanović, Jovana Mišković)
Prirodno-matematički fakultet, Univerzitet u Novom Sadu,
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Neplanska eksploatacija prirodnih resursa i loše upravljanje otpadom predstavljaju globalni problem. Upotrebom biorazgradivih biopolimera otvara se mogućnost za bolje korišćenje poljoprivrednog otpada, rešavanje problema nestašice fosilnih goriva, upravljanja čvrstim otpadom i ekoloških problema koje uzrokuje upotreba plastike zbog njene otpornosti na biorazgradnju.

Nedavno se došlo do saznanja da se lako može iskoristiti sposobnost gljiva da iz poljoprivrednog otpada stvore biorazgradivu ambalažu i kompozitni biomaterijal koji su ekološki prihvatljiviji od polistirena, a imaju potencijalnu upotrebu u industriji. Ceo proces se oslanja na prirodni rast hifa (micelije) koje luče enzime za razgradnju polisaharida u supstratu i razlažu biopolimere u monomere apsorbivane potom od samih gljiva.

Upotrebom pojedinačnih ili kombinovanih supstrata u zavisnosti od primene i zahtevanih osobina biomaterijala (čvrstoća, elastičnost), koristili smo tri tipa supstrata u jednakim odnosima (S1: slama/piljevina; S2: 100% slama; S3: piljevina /soja, ječam) za rast kultura makrogljiva: *P. ostreatus*, *S. commune*, *A. aegerita*, *T. versicolor*, *G. adpersum*, *P. betulinus* i *F. velutipes*.

Zahvalnica: Ovaj rad je finansiran sredstvima Fonda za inovacionu delatnost Republike Srbije, projekat br. 5157(2020/2021) i Eu4Tech projekat (2021) i projekat TTF1112 (2022/2023)



PROF. DR MAJA KARAMAN (1973) je redovni profesor (2020) na PMF UNS na Departmanu za biologiju i ekologiju, Katedra za mikrobiologiju. Diplomirala je 1997. sa nagradom za postignut uspeh tokom studija, magistrirala 2002. i doktorirala 2009. Bila je stipendista Ministarstva za nauku i tehnološki razvoj RSrbije kao i Fonda za talente. Pored nastavne delatnosti na svim akademskim nivoima studija Biologije bavi se i naučno-istraživačkim radom u oblasti mikrobiologije, mikologije, a posebno fiziologije, biohemije i ekologije gljiva. Od 2018. godine je osnivač i rukovodilac Laboratorije za mikologiju - ProFUNGI, PMF-a u Novom Sadu, koja ima za cilj edukativni i eksperimentalni rad u oblasti bazičnog i aplikativnog istraživanja gljiva. Član je Saveta PMF-a, a od 2016. je saradnik Mikološko gljivarskog saveza Srbije sa kojim aktivno učestvuje u istraživanjima diverziteta gljiva Srbije, kao i u edukaciji građanstva o jestivosti, otrovnosti i lekovitosti gljiva. Od 2013. postaje član je OPTIMA org. Za taksonomska proučavanja gljiva Mediterana, a od 2020. je rukovodilac projekata Fonda za inovacionu delatnost RS i trenutno razvija tehnološki proces u proizvodnji biomaterijala na bazi gljiva.

LECTURE 1

16. 10. 2023.
The Science Club
(Cultural Station
„Svilara“)
Đorđa Rajkovića 6b,
Novi Sad, Serbia

„RECYCLING IN ART“

Our perception and cognition are definitely processes that, at least for now, cannot be fully defined by algorithms, nor can they be measured by measurement values. Perception and cognition are creative processes, which means that they can always lead us to something new. If, while observing something, we do not find anything new in it, the impression is boring. If we manage to expand our cognitive and thought structures and thanks to that we perceive something that is not within the scope of our previous (experiential) knowledge, we will have an aesthetic experience. Hence the feeling of beauty - the feeling of successfully expanding and deepening our perceptual, experiential knowledge. If what we perceive is too simple for perceptual processing, we adopt and absorb it without creating anything new, resulting in indifference and boredom. Also, if the process of perceiving and knowing something is too complex, we fail to assimilate what we see. It also results in not having a “sense of accomplishment” in our perceptual system, which again results in aversion and passivation, shutting down perceptual processes. If, however, we manage to successfully integrate the new into our existing cognitive knowledge, we are rewarded with that special feeling - beauty. Therefore, beauty can also be seen as a side effect of the basic functions of our perceptual learning system, precisely because of the creative nature of our knowledge and understanding of the phenomena around us. The best works of art are so rich that they can produce such experiences again and again. And the resulting feeling of beauty marks the moment of our own progress and spiritual growth, and indeed, we gain when we experience beauty.

The sensibility for the transformation of waste material and the new life that is given to it, has definitely entered life and art. Paper is especially inspiring as a medium for artistic research. Whoever reached for this medium fell in love with paper pulp at first sight because of its unlimited expressive possibilities. I wondered where such an attitude towards paper came from? In essence, it is cellulose, an organic matter that contains solar energy captured by photosynthesis. That is why working with this material, which in itself is warm and tactile and organically very pliable, is suitable for shaping. Thinking about all that, when you have this kind of material, I dare to say that you can talk about “organic painting”.



PROF. DR MILAN MATAVULJ was born in Banja Luka on March 19, 1948. He graduated from the Academy of Arts in Novi Sad in 1988. He studied painting with professor Milan Stašević, sculpture with professor Toma Kauzlarić and history of art with prof. Dr. Katarina Ambrozić. Graduated in 1996. in the graphics department in the class of professor Živko Đak. Member of SULUV and SULUJ since 1989. Member of the Association of Fine Artists of the Republic of Srpska. Member of the International Association of Art - (IAA AIAP) UNESCO since 1989. Member of ULUS since 1997. Member of the Artistic Brotherhood of Tavana Monastery since 1998; 2001 - 2005 President of the Union of Associations of Visual Artists of Vojvodina. Exhibited at over 200 collective exhibitions in the country and abroad (Austria, Hungary, Belgium, Holland, England, North Macedonia, Republika Srpska, Croatia, Germany, Bulgaria, Japan, USA, Thailand).



„BIOMATERIALS BASED ON MACROFUNGI“

*(Maja Karaman, Nenad Krsmanović, Jovana Mišković)
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Unplanned exploitation of natural resources and poor waste management represent a global problem. The use of biodegradable biopolymers opens up the possibility for better use of agricultural waste, addressing the problems of shortage of fossil fuel, solid waste management and environmental problems caused by the use of plastics due to its resistance to biodegradation.

Recently, it has come to the knowledge that the ability of mushrooms can be easily exploited through the ability of fungi to create biodegradable packaging and composite biomaterials from agricultural waste that are more environmentally friendly than polystyrene and have potential industrial uses. The whole process relies on the natural growth of hyphae (mycelia) that secrete enzymes for the breakdown of polysaccharides in substrate and break down biopolymers into monomers that are then absorbed by the fungi themselves.

Using individual or combined substrates depending on the application and the required properties of biomaterials (strength, elasticity), we used three types of substrates in equal ratios (S1: straw /sawdust; S2: 100% straw; S3: sawdust/soybeans and barley) for the growth of macrofungal strains: *P. ostreatus*, *S. commune*, *A. aegerita*, *T. versicolor*, *G. adspersum*, *P. betulinus* and *F. velutipes*.

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PROF. DR MAJA KARAMAN (1973) is a full professor (2020) at FS UNS at the Dept. of Biology and Ecology, Cathedra of Microbiology. She graduated in 1997 with an award for achievement during studies, received her master's degree in 2002 and her PhD in 2009. She was a scholarship holder of the Ministry of Science and Technological Development as well as the Talent Fund of the RS. In addition to teaching activities on all academic levels of Biology studies, she also engages in scientific research in the field of microbiology, mycology, and especially physiology, biochemistry and mushroom ecology. Since 2018, she is the founder and manager of the Laboratory of Mycology - ProFUNGI, FS in Novi Sad, which aims at educational and experimental work in the field of basic and applied mushroom research. She is a member of the FS Council, and since 2016 she has been an associate of the Mycological Mushroom Association of

Serbia, with which she actively participates in research into the diversity of mushrooms in Serbia, as well as in educating citizens about the edibility, toxicity and medicinal properties of mushrooms. In 2013, she became a member of OPTIMA organization for taxonomic studies of Mediterranean mushrooms, and since 2020 she is the project manager of the Fund for Innovation & Technology Development of RS and is currently developing a technological process for the production of mushroom-based biomaterials.



PREDAVANJE II

24. 10. 2023.

Naučni Klub (Kulturna
Stanica „Svilara“)
Đorđa Rajkovića 6b,
Novi Sad, Srbija

„TEHNO-EKOLOŠKI ALATI ZA RAZOTKRIVANJE SVETA“

Predavanje Umetnički načini gledanja i kreiranja - Tehno-ekološki alati za razotkrivanje sveta predstavice kako umetnički poduhvati u okviru tehno-naučnih metoda otkrivaju simbiotske mreže zamršenih odnosa živog sveta koji nas okružuje. Kretaćemo se kroz radove umetnica koje razotkrivaju svet nevidljivih mikroorganizama i bakterija, oblikuju vazduh i nevidljivo kroz hranu, mirise, odeću, objekte, kozmetiku i nove vrste. Zakoračićemo u svet neljudskih agenata, insekata, biljaka, životinja i veštačke inteligencije preispitivajući drugost prirode i nas samih. Predavanje će predstaviti kompaktan ali kratak pregled vidova komunikacije između različitih živih sistema kao i oblika saradnji koje se između njih i ljudi formiraju. U pokušaju da raspletemo isprepletane pristupe disciplinarnih metodologija između umetnosti + nauke + tehnologije + živih sistema povećemo dijalog o etičkim pitanjima rada sa biomaterijalom i živim organizmima, očekivanjima, formama izlaganja, izazovima arhiviranja i očuvanja kao i novim poretcima koje interdisciplinarne saradnje ovog tipa nude.



SUNČICA PASULJEVIĆ-KANDIĆ bavi se poetskim istraživanjem medija. Na antidisciplinarni način orkestrira delikatno koreografsane somatske i semantičke interakcije sa zajednicama i prostorima sa kojima se susreće. Stvara intervencije na preseku umetničkog istraživanja, kustoske i pedagoške prakse gde istražuje metode odučavanja, paradigme znanja, prakse razmene,

saradnje i komunikacije i kako jezik utiče na formiranje identiteta i znanja u tehno-ekološkom okruženju koje prožima veštačka inteligencija. Svoj umetnički identitet sagledava kao fluidan transformišući tok kroz koji se odučava od ustaljenih normi i na novo uči sa (ne)ljudskim svetom oko sebe.

LECTURE II

24. 10. 2023.

The Science Club
(Cultural Station
„Svilara“)
Đorđa Rajkovića 6b,
Novi Sad, Serbia

„TECHNO- ECOLOGICAL TOOLS FOR REVEALING THE WORLD”

Lecture The Artists ways of seeing and doing - Techo-ecological tools to (un)see the world will present how artistic endeavors within the framework of techno-scientific methods reveal symbiotic networks of intricate relationships of the living world that surrounds us. Investigating the artworks created by female artists who reveal the world of invisible microorganisms and bacteria, we will explore how they shape the air and the invisible through food, fragrances, clothes, objects, cosmetics and new species. We will step into the world of non-human agents, insects, plants, animals and artificial intelligence, questioning the otherness of nature and ourselves. The lecture will present a compact but brief overview of the types of communication occurring between different living systems as well as the forms of collaboration that are being formed between them and people. In an attempt to untangle the intertwined approaches of disciplinary methodologies between art + science + technology + living systems, we will enter a dialogue regarding ethical issues of working with bio material and living organisms, expectations, forms of presentations-exhibitions, archiving challenges and new orders that these interdisciplinary collaborations offer.

SUNČICA PASULJEVIĆ-KANDIĆ is a poetic media explorer and anti-disciplinary being who orchestrates loosely choreographed somatic & semantic interactions with communities and spaces she encounters. She creates interventions at the intersection of artists research, curatorial and pedagogical practice where she explores (un)learning, knowledge, sharing, collaboration, communication, language and identity making in a techno ecological environment pervaded by AI. Her artist identity is diverse, fluid and ever-changing as she learns, unlearns with the human and non-human world around her.



PREDAVANJE III

28. 10. 2023.
Naučni Klub (Kulturna
Stanica „Svilara“)
Đorđa Rajkovića 6b,
Novi Sad, Srbija

„(NE)MOGUĆNOSTI EKOLOŠKOG PRISTUPA U UMETNIČKOJ PRODUKCIJI“

U svom radu se pretežno usmeravam na problematike koje se tiču individualnog i kolektivnog stava prema prirodnim fenomenima koji se suočavaju sa uticajem antropocena. Kako je ta tema generalno aktivna i daje mnoštvo predikcija o posledicama, raznih socioloških i naučnih statistika, uveliko je i aktivna u umetničkim praksama. Iz tog razloga, na predavanju ću predstaviti analizu ličnog pristupa u radu, koji nije konkretno Bio art (umetnost), ali sadrži načela i reference koje se mogu pronaći u pristupu umetnika i umetnica koji su iz tog polja umetnosti. Koliko su značajne naučne činjenice, kako se mogu involvirati u umetničko istraživanje i produkciju? Na koji način možemo pristupiti izboru materijala i koliko nas naša životna sredina ograničava ili podstiče da u svom umetničkom pristupu budemo ekološki osvešćeniji?

Smatram da je glavni motiv Bio Art-a (umetnosti), kao savremene umetničke prakse koja se razvija rapidno, umnožavajući svoje pristupe u skladu sa naučnim saznanjima, prvenstveno etičnost prema prirodi, odn. životnoj sredini. U tom slučaju, predavanje će biti bazirano na ličnom polazištu u umetničkom radu, mogućnostima/nemogućnostima da umetnička praksa bude etična prema životnoj sredini, i načinima i mehanizmima koje uviđam na umetničkoj sceni da doprinose ovoj temi.

- *Darija Dragojlović*

DARIJA DRAGOJLOVIĆ (1996, Kraljevo). Završila je master studije na Akademiji umetnosti u Novom Sadu, departman likovnih umetnosti, smeru slikarstvo. Osnovne studije je završila na Filološko - umetničkom fakultetu (FILUM, Kragujevac), odsek - zidno slikarstvo, u klasi profesora Gorana Rakića. Realizovala je devet samostalnih izložbi kao i učešće na više grupnih, na teritoriji Srbije. Učestvovala je na likovnim kolonijama i stručnim praksama u oblasti konzervacije i restauracije kulturnog nasleđa, kao i umetničkim projektima poput Pomeraj u Kodu (2021), Kod u umetnosti (2022), Gete – Na istom zadatku (2021), Na unutrašnjem moru (2022). Umetnička

direktorka projekta Udi – unutra, realizovanog u saradnji Sterijinog pozorja i udruženja građana Reaktor. Bila je stipendista Dositeja - Fonda za mlade talente, 2019/2020. godine, koju dodeljuje Ministarstvo omladine i sporta Republike Srbije. Član je SULUV-a i Šok ZaDruge (MMC Led Art), u okviru koje je od 2021. godine jedan od urednika likovnog programa. Od 2021. Godine, aktivno učestvuje u svim projektima koje sprovodi MMC "Led Art". Angažovana je više puta za pisanje kustoskih tekstova i uređivanje publikacija, individualno i u sklopu MMC "Led Art-a". Živi i radi u Novom Sadu.



LECTURE III

28. 10. 2023.
The Science Club
(Cultural Station
„Svilara“)
Đorđa Rajkovića 6b,
Novi Sad, Serbia

„(IM)POSSIBILITY OF ECOLOGICAL APPROACH IN ARTISTIC PRODUCTION“

In my work, I mainly focus on issues concerning individual and collective attitudes toward natural phenomena that face the influence of the Anthropocene. As this topic is generally active and gives many predictions about the consequences, and various sociological and scientific statistics, it is also very active in artistic practices. For this reason, in the lecture, I will present an analysis of the personal approach in the work, which is not specifically Bio art but contains principles and references that can be found in the approach of artists from that field of art. How important are scientific facts, and how can they be involved in artistic research and production? How can we approach the choice of materials and how much does our environment limit or encourage us to be more ecologically conscious in our artistic approach?

I believe that the main motive of Bio Art, as a contemporary artistic practice that is developing rapidly, multiplying its approaches by scientific knowledge, is primarily ethics towards nature. environment. In that case, the lecture will be based on a personal starting point in artistic work, the possibilities/impossibility of artistic practice being ethical towards the environment, and the ways and mechanisms that I see on the art scene that contribute to this topic.

– *Darija Dragojlović*

DARIJA DRAGOJLOVIĆ (1996, Kraljevo). She completed her master's studies at the Academy of Arts in Novi Sad, Department of Fine Arts, majoring in painting. She completed her bachelor studies at the Faculty of Philology and Art (FILUM, Kragujevac), department - wall painting, in the class of Professor Goran Rakić. She has held nine solo exhibitions as well as participated in several group exhibitions on the territory of Serbia. She participated in art colonies and professional practices in the field of conservation and restoration of cultural heritage, as well as artistic projects such as Move-in Code (2021), Code in Art (2022), Goethe - On the Same Task (2021),



On the Inland Sea (2022). Artistic director of the project Come in – Inside (2023) realized in cooperation with the Sterija Theater and the NGO Reaktor. She is a 2019/2020 scholarship holder of the Dositeja - Fund for Young Talents. awarded by the Ministry of Youth and Sports of the Republic of Serbia. He is a member of SULUV and Shock Cooperative (MMC Led Art), within which she has been one of the editors of the art program since 2021. From 2021, she actively participated in all projects implemented by MMC Led Art. She has been engaged several times to write curatorial texts and edit publications, individually and as part of MMC Led Art. She lives and works in Novi Sad.

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