OTROVNI I JESTIVI UKRASI PRIRODE

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KATALOG IZLOŽBE

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PRIRODNJAČKI MUZEJ CRNE GORE
NATURAL HISTORY MUSEUM OF MONTENEGRO

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Gljive su dugo smatrane jednostavnim biljkama, prvenstveno zbog svoje sposobnosti da apsorbuju hranljive materije iz podloge i zbog toga što se ne kreću. Zbog niza osobina koje ih odvajaju od biljaka i životinja, svrstane su u posebno carstvo – Fungi. Imaju nezamjenljivu ekološku ulogu u prirodi, jer bez njih bi stalo kruženje ugljenika i drugi biogenih elemenata u biosferi, pa planeta ne bi bila ovakva kakvu je poznajemo. Iako u razgradnji mrtvih organizama učestvuju i bakterije, gljive su ključne u razgradnji biljnih ostataka, što je posebno važno u šumskim ekosistemima. Neke gljive imaju veoma važnu ulogu u zdravlju i rastu biljaka jer povezuju svoj micelijum (tijelo gljive u podlozi) sa korijenjem biljaka, pomažući im da upiju vodu i mineralne materije (fosfor i azot).

Osim što gljive imaju veliki ekološki značaj, pojedine vrste se izdvajaju svojom atraktivnošću, pa ih možemo smatrati svojevrsnim ukrasima prirode. Dok od nekih možemo napraviti ukusan obrok, druge nas, pak, mogu odvesti u sigurnu smrt. Jestive pečurke u sebi sadrže dosta hranljivih materija: od proteina, ugljenih hidrata, dijetalnih vlakana do vitamina i minerala. Dobre su za naš mozak, srce imunološki i probavni sistem, a smatra se da neke imaju i antikancerogeno dejstvo.

Sa druge strane, postoje i one otrovne, a čija uloga u prirodi nije ništa manje važna od one koju imaju jestive gljive, kao i one koje smatramo nejestivima ili je jestivost i otrovnost nepoznata. A zašto su otrovne? To je još jedna nepoznanica ovog carstva. Znamo da su mnoge vrste životinja i biljaka tokom evolucije stvorile otrovne materije u cilju odbrane od predatora, dok kod gljiva to nije slučaj. Mnoge otrovne vrste su lijepih i upadljivih boja, ali postoje i one koje su neutralne i neupadljive. Takođe, jestive gljive mogu imati iste ili veoma slične nijanse. I jedne i druge mogu imati prijatne mirise i ukuse, kao i neprijatne. Pojedine vrste organizama (kao puževi i insekti) slobodno mogu jesti otrovne gljive u neograničenim količinama, dok za čovjeka njihova upotreba može biti veoma opasna. To znači da ne postoji opšte pravilo po kojem bi razlikovali otrovne od jestivih gljiva, tako da je jedino pravilo, da nema pravila! Veoma je važno dobro poznavanje karakteristika jestivih gljiva koje želimo da sakupljamo, po kojima ćemo ih pouzdano razlikovati od sličnih otrovnih ili nejestivih.

Na stranicama koje slijede pokušaćemo vam pomoći u rješavanju nekih nedoumica i za početak pružiti nekoliko praktičnih savjeta, a u svrhu izbjegavanja konfuzije između nekih otrovnih gljiva i njima sličnih vrsta koje se mogu konzumirati.

Zahvaljujem se svima koji su doprinijeli realizaciji ove izložbe, a posebnu zahvalnost dugujem mojim dragim kolegama Zdenku, Arminu i Nevenu na fotografijama gljiva.

Ilinka

MALA SMRT

Galerina marginata

Šešir je širok 5–50 (70) mm, u početku ispupčen; dok je mlad sa uvučenom ivicom, a kasnije raširen i blago udubljen u sredini. Po vlažnom vremenu površina šešira je glatka i sjajna. Boja varira od crvenkaste do oker, žuto-braon do crveno-braon kada je vlažno, dok je žuto-oker na suvom vremenu. Higrofan; po vlažnom vremenu malo prugast. Listići su prirasli, gusti i široki, dok su mladi svijetlo oker, starenjem postaju žuto-braon. Drška 20–70 × 1–5 (10) mm, cilindrična, sa tankim membranoznim prstenom, koji ponekad brzo isčezne. Površina je uzdužno vlaknasta ili sa svjetlijim, vlaknastim šarama, dok je boja iznad prstena svilenkasto bijelo-bež, a ispod, prema bazi sivkasto-braon do tamno-braon. Najčešće raste pojedinačno ili u grupama odvojenih plodišta, no ponekad se može pronaći i u busenima. Miris je blago brašnast. Mala smrt je u Crnoj Gori veoma česta i rasprostranjena je u listopadnim i četinarskim šumama tokom ljeta i jeseni. Kao što joj i samo ime kaže, mala smrt je smrtno otrovna gljiva jer sadrži otrove amatoksine. Prvi simptomi trovanja javljaju se kasno, 6 sati nakon konzumacije u vidu porasta tjelesne temperature, mučnine i povraćanja. Ukoliko se otrovani ne liječi, dolazi do razaranja jetre, što se u najvećem broju slučajeva završava smrću.

I.Ćetković

Ove dvije vrste su veoma slične. Obje se javljaju na panjevima i oborenim deblima (panjevčica skoro uvijek na listopadnim) tokom ljeta i jeseni. Panjevčica uvijek raste busenasto, dok mala smrt češće raste pojedinačno ili u grupama odvojenih plodišta, no ponekad se može pronaći i u busenima. Plodišta su sličnih boja i veličina, a na drški imaju nježan vjenčić. Makroskopski ih možemo razlikovati po tome što panjevčica ima sitne stršeće ljuspice po površini drške u području ispod vjenčića, kao i slične ljuspice u spoljašnjoj zoni površine šešira (koje kod zrelih plodišta često znaju nestati). Sa druge strane, mala smrt ima površinu drške samo uzdužno vlaknastu ili sa svjetlijim, vlaknastim šarama (bez štršećih vrhova), te golu površinu šešira. Takođe, ove dvije vrste se razlikuju i po mirisu: mala smrt miriše na brašno, dok panjevčica ima gljivlji miris.

PANJEVČICA

Kuehneromyces mutabilis

I. Ćetković

Šešir je širok 10–60 mm, gladak, malo vlažan ili suv; dok je mlad ispupčen, ali ubrzo postaje raširen, tupo zvonast i dugo sa podvijenom ivicom. Boja šešira je žućkasto-braon (centralni dio brzo izblijedi), često sa jasno označenom zonom u blizini tamnijeg ivičnog dijela. Izrazito je higrofan i ponekad providno–prugast kada je vlažan. Površina šešira pokrivena je sitnim, bjeličastim, stršećim ljuspicama koje kod zrelih plodišta često mogu biti isprane. Listići su spojeni, široki i gusti; svijetlo-bež, vremenom postaju rđave boje. Drška je 40–100 × 3–12 mm, cilindrična i sa prstenom (braon boje od otpalih spora). Površina drške iznad prstena je svijetlo-bež boje, ispod prstena braonkasto-oker, dok je prema bazi tamno-braon; uzdužno je izbrazdana i pokrivena sitnim, bjeličastim, stršećim ljuspicama, sličnim kao na površini šešira. Miris je gljivlji (nije na brašno), a ukus blag. Panjevčica je jestiva gljiva, a u Crnoj Gori je česta i rasprostranjena u listopadnim šumama tokom ljeta i jeseni.

OTROVNI ŠAMPINJON +⚠

Agaricus xanthodermus

Šešir je širok 50–130 mm, u početku poluloptast sa ravnim središnjim dijelom, kasnije raširen, ponekad sa malom grbicom na sredini. Površina je glatka, bijela; na suncu često postaje mišje siva i na kraju radijalno puca u nepravilne mrlje. Ivica šešira je podvijena dugo vremena. Listići su u početku blijedo-roze-sivi, sazrijevanjem spora postaju tamno ljubičasto-braon; gusti. Drška je 50–100 × 10–15 mm, cilindrična, bijela i pri osnovi lukovičasta, sa velikim visećim prstenom. Otrovni šampinjon se lako raspoznaje po tome što je drška u osnovi žuta, a mjesta povrede šešira, ili drugog dijela plodišta, vrlo brzo promijene boju u limun žutu. Miris je jak na karbol, posebno kada se prereže baza stabljike. *Agaricus xanthodermus* je otrovna gljiva jer sadrži toksine koji mogu uzrokovati ozbiljne želudčane probleme, mučninu, povraćanje, znojenje i dijareju. U Crnoj Gori je najčešće nalazimo u četinarskim šumama, kao i na rubovima, često u malim skupinama, ali povremeno i pojedinačno, tokom ljeta i jeseni.

Z. Tkalčec & A. Mešić

KRAČUN

Agaricus urinascens

Z. Tkalčec & A. Mešić

Šešir je širok 100–250 mm, u početku poluloptast, zatim proširen i ravan, gladak do vlaknast. Isprva je bijele boje, ali postaje blijedo-oker i lagano žuti, naročito blizu ivice. Na suvom vremenu, površina šešira često puca u piramidalne bradavice, a ivica šešira je podvijena dugo vremena. Listići su u početku blijedo-ružičasti, a ubrzo postaju ljubičasti do tamno-braon; široki i gusti. Drška je cilindrična, dimenzija 50–100 × 25–35 mm, sa širokim bijelim, opnastim prstenom. U početku je bijela, a kasnije mijenja boju od svijetlo oker do braonkaste. Površina drške iznad prstena je glatka, dok je ispod posuta finim ljuspicama. Pri povredi, površina šešira može dobiti žute nijanse, no meso u bazi drška na presjeku ostaje bijelo ili lagano mijenja boju u rozikastu do braonkastu. Miris je na bademe, a ukus blag, orašast, poput anisa. Kračun je jestiva gljiva, izvrsnog ukusa. U Crnoj Gori je česta na livadama i otvorenim mjestima u šumama, tokom ljeta i jeseni.

Ove dvije gljive makroskopski su veoma slične i lako ih je zamijeniti. Obje se javljaju u istom periodu godine, pa iako je otrovni šampinjon prvenstveno šumska vrsta, može se naći i na livadama i pašnjacima, staništu kračuna. Otrovni šampinjon ima nešto manji šešir i vitku dršku. Ima jak i veoma neprijatan miris na karbol, a ukoliko se termički obradi, neprijatni miris će se pojačati. Na presjeku će meso u bazi drške odmah postati limun žuto. Sa druge strane, kračun ima veći šešir i znatno širu dršku, kao i blagi prijatni miris na bademe. Pri povredi, površina šešira može dobiti žute nijanse, no meso u bazi drška na presjeku ostaje bijelo ili lagano mijenja boju u ružičastu do braonkastu.

PANTEROVA MUHARA

Amanita pantherina

Šešir je širine 50–100 mm, u početku poluloptast a kasnije ispupčen do proširen. Boja šešira varira od žućkasto-braon do sjajno-braon jer je po vlažnom vremenu pomalo mastan. Ivica šešira je nareckana. Po površini šešira uočavaju se bijele i labave krpice (ostaci univerzalnog vela). Listići su bijeli, slobodni i široki. Drška je veličine 60–100 × 10–20 mm, vlaknasta i bijela, sa tankim bijelim prstenom; cilindrična i sa ravnom ivicom bulbe. Meso, listići i drška su uvijek bijeli i ne mijenjaju boju pri povredi. Miris nije određen, međutim, kada se nagnječi meso lagano miriše na rotkvicu. Panterova muhara je u Crnoj Gori rasprostranjena u listopadnim i četinarskim šumama, tokom ljeta i jeseni, a pojavljuje se pojedinačno ili najviše dvije do tri zajedno. Panterova muhara je smrtno otrovna gljiva. Otrovne supstance (ibotenična kisjelina i muscimol) koje su prisutne u šeširu, brzo se i lako apsorbuju iz gastrointestinalnog trakta. Početni simptomi trovanja javljaju se vrlo brzo nakon konzumacije u obliku uznemirenosti, halucinacija i hiperkinetičkog ponašanja. Kasnije se javljaju simptomi kao što su proširene zjenice, suva i crvena koža, povišen krvni pritisak i tahikardija, te akutna respiratorna insuficijencija u kasnijim fazama trovanja, a što se u najvećem broju slučajeva završava smrću. Koji simptomi i koliko će biti izraženi, zavise od opšteg stanja organizma i količine unijetog otrova.

I.Ćetković

Ove dvije vrste su morfološki slične i lako ih je zamijeniti, a obje se pojavljuju u listopadnim i četinarskim šumama tokom ljeta i jeseni. Panterova muhara ima uvijek bijele bradavice na šeširu, bijelu dršku sa tankim bijelim prstenom i izraženu ivicu bulbe. Sa druge strane, bradavice na šeširu kod biserke su bež do prljavo ružičaste, drška je sa širokim visećim vjenčićem i ne postoji jasna granica između bulbe i drške. Ivica šešira kod panterove muhare je nareckana, za razliku od prstena, a listići bijeli, dok biserka ima ravnu ivicu, nareckani vjenčić, a bijeli listići starenjem postaju rozikasti sa crvenkastim mrljama. Biserka uvijek pri povredi plodišta nakon nekog vremena promijeni boju u crvenkastu ili vinski crvenu, dok su kod panterove muhare ovi dijelovi plodišta uvijek bijeli.

BISERKA

Amanita rubescens

I. Ćetković

Šešir je širine 50–150 mm, poluloptast dok je mlad, zatim ispupčen do proširen. Boja šešira varira od oker-braon do crvenkasto-braon, a ponekad, dok je mlad, bude i blijedo-oker. Površina šešira prekrivena je bjeličastim do crvenkasto-braon krpicama, koncentrično raspoređenim (ostaci univerzalnog veluma). Ivica šešira je ravna. Meso je bijelo, a kada se nagnječi polako postaje braonkasto-crveno. Listići su bijeli, široki i gusti. Kod zrelih primjeraka listići su često sa ružičastim ili rđavo-crvenim mrljama. Drška je veličine 60–150 × 15–40 mm, sa bijelim i visećim prstenom, cilindrična do klavatna sa zaobljenom bulbom i ne postoji jasna granica između njih. Površina drške iznad prstena je bjeličasta do crvenkasto-braon, a ispod prstena je crvenkasto-braon sa tamno-ružičastim mrljama. Biserka je jestiva gljiva koja je u Crnoj Gori široko rasprostranjena u lišćarskim i četinarskim šumama, tokom ljeta i jeseni. Ponekad se pojavi u tako velikom broju da "preplavi" šumu.

LUDARA +⚠

Rubroboletus satanas

Šešir je 60–200 (300) mm, blijedo pepeljasto siv ili srebrno siv; dok je mlad poluloptast, zatim pljosnat. Starenjem postaje svijetlo braonkast bez, ili sa malo ivične roze boje. Žute cjevčice završavaju porama koje su u početku žućkaste, ali ubrzo postaju narandžaste, a zatim crvene kako spore sazrijevaju. Drška je 40–140 × 40–60 (100) mm, cilindrična ili češće lukovičasta, u dijelu ispod šešira žuta, a zatim crvena, pokrivena finom crvenom mrežicom na gornjoj polovini. Meso je debelo, sunđerasto i bjeličasto, ali kod nezrelih primjeraka može biti žute do slamnate boje, a ponekad je crvenkasto u bazi stabljike. Prilikom rezanja polako postaje svijetlo plave boje (intezivnije plavo oko vrha i iznad cjevčica), a zatim se vraća u izvornu sivkasto-bijelu boju. Miris je neprijatan, na amonijak, urin ili truli kupus. *Rubroboletus satanas* raste u listopadnim šumama, najčešće u bukovim i hrastovim, tokom ljeta i jeseni. U Crnoj Gori je zaštićena i registrovana na nekoliko lokaliteta. Ludara je otrovna gljiva, naročito ako se konzumira u svježem stanju. Sadrži otrovni enzim bolesatin, koji uzrokuje teške stomačne problem, koji uključuju simptome kao što su jaki bolovi u stomaku, nasilno povraćanje i krvava dijareja koja može trajati i do šest sati. Nije dokazano da izaziva bilo kakav oblik "ludila", te svoj narodni naziv ludara nosi potpuno neopravdano.

Z. Tkalčec & A. Mešić

Pravi vrganj je jedna od napoznatijih jestivih vrsta gljiva u Crnoj Gori i najčešće se koristi u ishrani. Iako imaju veoma sličan oblik plodišta, mala je vjerovatnoća zamjene ove dvije gljive, jer ludara ima crvenu dršku i pore, a meso polako plavi pri povredi, dok pravi vrganj nema crvenih boja u porama i dršci, te ne plavi. Ludara živi samo u lišćarskim šumama i ima jako neprijatan miris, dok je pravi vrganj prijatnog mirisa i živi u lišćarskim i četinarskim šumama.

KRALJ GLJIVA

Boletus edulis

I. Ćetković

Šešir je širok 50–200 (400) mm, u početku poluloptast, kasnije konveksan do raširen, mastan po vlažnom vremenu. Površina šešira je glatka, a boja varira od gotovo bijele do svijetlo-braon ili braon, ponekad žuto-braon ili crveno-braon. Ivica šešira je ravna i dugo podvijena. Cjevčice su u početku bijele (dok su mlade), starenjem postaju blijedo-žute ili maslinasto-braon; završavaju se sitnim bijelim ili žućkastim porama i lako se skidaju. Meso je bijelo i čvrsto dok je mlado, starenjem postaje sunđerasto i ispod kutikule braonkasto. Pri povredi ili rezanju plodišta, meso, pore i cjevčice ne mijenjaju boju. Drška je 40–150 × 20–50 (70) mm, cilindrična sa zadebljalom osnovom i bijelom mrežicom na bež pozadini. Miris je prijatan, a ukus blag, orašast. Pravi vrganj je jestiva gljiva koja se kod nas najčešće koristi u ishrani. U Crnoj Gori je široko rasprostranjen i čest u listopadnim i četinarskim šumama, tokom ljeta i jeseni. Pojavljuje se pojedinačno ili u grupi od po nekoliko plodišta.

MUHARA +⚠

Amanita muscaria

Plodište je na početku u obliku jajeta, potpuno prekriveno bijelim univerzalnim velom. Šešir je širok 60–200 mm; u početku sferičan dok je mlad, kasnije ispupčen do proširen. Boja šešira je crvena do blijedo-narandžasta i prekrivena koncentričnim, piramidalnim bijelim bradavicama (ostacima univerzalnog vela) koje ponekad mogu i nestati. Ivica šešira je podvijena dugo vremena. Listići su bijeli i široki. Drška je 80–250 × 10–25 mm, cilindrična do klavatna, bijela, uzdužno bijelo-fibrilozno-vunasta, do 50 mm širokom bazalnom lukovicom sa koncentričnim prstenovima, koji predstavljaju ostatke univerzalnog veluma. Prsten je membranast, bijeli sa žućkastom ivicom. Miris je neodređen. Muhara je otrovna gljiva koja raste u listopadnim i četinarskim šumama. U Crnoj Gori je česta i rasprostranjena; javlja se od ranog ljeta do kasne jeseni. *Amanita muscaria* sadrži psihoaktivne alkaloide muscimol i ibotensku kisjelinu, kao i muskazon i muskarin. Konzumiranje muhare uzrokuje različite simptome od pospanosti, mučnine, halucinacija, do euforije i vrtoglavice. Koji od simptoma će biti najizraženiji zavisi od količine otrova unešenog u organizam. Ukoliko se muhara konzumira u sirovom stanju izaziva jake bolove u želucu.

I.Ćetković

I. Ćetković

TIKVASTA PUHARA

Lycoperdon perlatum

Plodište je kruškastog oblika, prečnika 15–40 mm, visine 40–90 mm; bijele do kremaste boje. Površina je pokrivena piramidalnim bradavicama, nalik na bisere, koje su različitih veličina. Piramidalne bradavice su u početku kremaste, zatim okeraste, a kada otpadnu ostave blage maslinasto-braon ožiljke na mjestima gdje su se nekad nalazile. Na vrhu plodišta se nalazi tamno područje na kojem se razvija pora kroz koju izlaze zrele spore. Miris i ukus je prijatan. Tikvasta puhara je jestiva gljiva, ali samo dok je mlada, dok je meso na presjeku bijelo. U Crnoj Gori je široko rasprostranjena u svim tipovima šuma, kao i na livadama i travnjacima tokom ljeta i jeseni.

Muhara je jedna od najpoznatijih vrsta gljiva i lako je prepoznatljiva, naročito kada je u svom tipičnom obliku (crveni šešir sa bijelim bradavicama i bijela drška). Međutim, dok je plodište u početnoj fazi razvoja, u obliku jajeta, može se lako zamijeniti sa tikvastom puharom! Ako se mlado plodište muhare prereže na pola, na presjeku se uočavaju nerazvijeni listići i narandžasta do crvena boja kožice šešira, dok je kod tikvaste puhare vidljivo jednolično bijelo meso. Osim toga, tikvasta puhara ima znatno sitnije bradavice na gornjem dijelu plodišta od jajeta muhare.

LIVADSKA ULEKNJAČA +⚠

Clitocybe rivulosa

Šešir je širine 10–60 mm, konveksan do ravan ili blago ulegnut, bijele boje, a starenjem dobija blagu žućkastu nijansu. Po suvom vremenu, površina šešira je glatka i svilenkasta, sa slabim koncentričnim prstenovima. Listići su široko prirasli i lagano silazni, gusti, bež boje. Drška je 15–40 × 3–8 mm, cilindrična, bež do blijedo žuta. Miris je slatkast. Livadska uleknjača je otrovna gljiva. Raste na neuređenim travnjacima, rubovima šuma, parkovima, ruderalnim područjima; često u velikim vilinskim prstenovima, tokom ljeta i jeseni. U Crnoj Gori registrovana je na nekoliko lokaliteta. *Clitocybe rivulosa* sadrži otrov muskarin i veoma je otrovna gljiva. Prvi znaci trovanja u vidu mučnine, bolova u želucu, kao i zamagljenog vida i otežanog disanja, javljaju se veoma brzo nakon konzumacije.

Z. Tkalčec & A. Mešić

VILIN KLINČIĆ

Marasmius oreades

I. Ćetković

Šešir je širok 10–50 mm; u početku zvonast do konveksan, a kasnije ravan sa malom grbicom u sredini; higrofan. Boja varira od narandžasto-oker do crvenkasto-braon, dok po suvom vremeni izblijedi. Ivica šešira je nepravilno talasasta. Listići su slobodni, bjeličasti do krem boje i prilično rijetki. Drška je 40–80 × 2,5–6 mm, bjeličasta do blijedo žuto-braon; cilindrična i prema bazi tamnija, glatka i suva. Baza drške je ponekad blago natečena. Ukus je blag, gljivlji. Vilin klinčić je u Crnoj Gori vrlo česta i rasprostranjena vrsta. Ova jestiva gljiva najčešće obrazuje velike vilinske krugove na travnjacima, livadama i pašnjacima, tokom ljeta i jeseni.

Obje ove vrste se javljaju na livadama tokom ljeta i jeseni. Njihova plodišta su sličnih boja, a mogu biti raspoređena tako da obrazuju takozvane vilinske krugove. Vilinski krugovi ovih vrsta znaju se ponekad naći i jedan do drugog. Ove dvije gljive najlakše ćemo razlikovati po listićima koji su kod vilinog klinčića prilično rijetki i slobodni (odvojeni od drške), dok su kod livadske uleknjače gusti, te ravno prirastaju na dršku, ili su lagano silazni. Takođe, drška vilinog klinčića je duplo duža nego kod livadske uleknjače.

RANI HRČAK, LAŽNI SMRČAK + ⚠

Gyromitra esculenta

Plodište je 50–120 mm visoko, 50–150 (200) mm široko, a boja šešira varira od žuto-crvene do crno-braon boje. Šešir je nepravilno zaobljen, zgužvan i spljošten, te podsjeća na koru velikog mozga. Plodište je obično šire nego visočije. Drška je kratka, jedva 1/4 do 1/3 visine šešira, bijela do kremasto-bijela i veoma krhka. Njena površina je fino dlakava i jako izbrazdana; iznutra je šuplja i glatka. Cijela gljiva izgleda kao "tamni oblak" i često nije jasno razdvojena na šešir i dršku. Meso je krhko, bez specifičnog mirisa ili ukusa. U Crnoj Gori rani hrčak raste pojedinačno ili u grupama; u četinarskim šumama, oko panjeva na pašnjacima; tokom proljeća i ranog ljeta. Ovu rijetku gljivu moguće je lako zamijeniti i sa sličnom vrstom *Gyromitra gigas* (veliki hrčak), a sa sigurnošću se razdvajaju samo mikroskopskim pregledom zrelih spora. I pored bezazlenog narodnog naziva, hrčci su veoma otrovne gljive koje mogu uzrokovati teška trovanja, nerijetko i sa letalnim ishodom. Prvi simptomi su obično mučnina, povraćanje, dijareja i druge stomačne tegobe, a nakon nekog vremena dolazi do pojave žutice (prvenstveno zbog dejstva hepatoksina), konvulzija i na kraju nastupaju koma i smrt. Osim toksina, hrčci u sebi sadrže i kancerogene materije (giromitrin).

N. Matočec

Rani hrčak i smrčci pojavljuju se u isto vrijeme, tokom proljeća i ranog ljeta, a mogu se pronaći na istim staništima. Iako na prvi pogled djeluju veoma slično, razlike nije teško uočiti. Smrčci imaju šešir izgrađen od komorastih udubljenja koja podsjećaju na pčelinje saće, dok je šešir ranog hrčka nepravilno vijugasto izbrazdan, te podsjeća na koru velikog mozga.

SMRČCI

Morchella spp.

I. Četković

Smrčci imaju koničan, eliptičan ili okruglast šešir na kojem su razvijena komorasta udubljenja koja podsjećaju na pčelinje saće. Cijelo plodište je na poprečnom presjeku šuplje. Smrčci se pojavljuju pojedinačno ili u grupama, u četinarskim i lišćarskim šumama, duž šumskih puteva i na zgarištima, tokom proljećnih mjeseci (najčešće u aprilu i maju). Plodišta su jestiva nakon termičke obrade, jer sadrže termolabilne otrove. U Crnoj Gori su smrčci rasprostranjeni, ali na njihovo plodonošenje utiče veliki broj različitih faktora, te se ponekad pojave u izobilju (preplave šume), a ponekad izostanu, ili se pojave u veoma malom broju. Kod nas imaju čestu primjenu u ishrani.

ZAVODNICA +⚠

Omphalotus olearius

Šešir je širok 30–100 mm, u početku ispupčen, kasnije ravan i jako ulegnut u sredini, sa zakrivljenom ivicom. Starenjem ivica šešira postaje talasasta. Boja varira od svijetlo-narandžaste do žućkasto-narandžaste i crvenkasto-braon. Površina je glatka do radijalno brazdasta i sjajna. Listići su izrazito silazni, gusti, široki (4–9 mm); u početku žuti, a kasnije narandžasti i imaju oštre i pravilne ivice (ponekad račvasti). Drška je 40–150 × 7–28 mm, glatka i narandžasta, prema bazi sužena i nešto tamnija. Položaj drške je centralni i pomalo ekscentričan. Zavodnica ima jak i neprijatan miris. Sadrži otrov muskarin, pa iako nije smrtno otrovna vrsta, može izazvati ozbiljne stomačne probleme, koji traju i po nekoliko dana. Zavodnica najčešće raste busenasto sa većim brojem plodišta, ali ona mogu biti malobrojna ili pojedinačna. U Crnoj Gori je zaštićena i pojavljuje se na panjevima, korijenovim žilama u listopadnim šumama tokom ljeta i jeseni. Ova neobična gljiva, tačnije njeni listići, mogu emitovati slabu svjetlost koja je vidljiva samo u potpunom mraku (bioluminiscencija).

Z. Tkalčec & A. Mešić

Zbog sličnih boja plodišta i listića koji duboko silaze niz dršku, moguća je zamjena ove dvije vrste. Iako lisičarka najčešće raste pojedinačno ili u malim grupama, može imati i zbijena, skoro busenasta plodišta. Zavodnica najčešće raste busenasto, sa većim brojem plodišta, no mogu biti i malobrojna ili pojedinačna. Lisičarka uvijek raste iz zemlje, a zavodnica iz živog ili mrtvog drveta. Ponekad je komad drveta ili korijenova žila ukopana, ili pokrivena slojem stelje, pa se čini da plodišta rastu iz zemlje. Najbolje ih je razlikovati po listićima koji su kod lisičarke uski (do 3 mm), relativno rijetki, često račvasti, sa međuvenama ili nepravilni, te sa tupom ivicom, dok su kod zavodnice širi (4–9 mm), gusti, oštre i pravilne ivice (ponekad račvasti). Takođe, boja plodišta lisičarke je između blijedo žute i narandžasto žute, dok na šeširu zavodnice gotovo uvijek postoje tamno-narandžaste do braon-narandžaste nijanse (barem u centru).

LISIČARKA

Cantharellus cibarius

I. Ćetković

Šešir je širine 10–100 (130) mm; u početku je kvrgast, a zatim zaobljen s valovitom nepravilnom ivicom. Plodište je obično ljevkastog oblika, a boja plodišta varira od svijetlo-žute do narandžasto-žute (kao kajsija), rjeđe bjeličaste. Ispod površine šešira su silazni, uski listići (do 3 mm), relativno rijetki, često račvasti, s međuvenama ili nepravilni, te sa tupom ivicom. Drška je 20–80 × 5–30 mm cilindrična i blago sužena; glatka do fino plišasta i čvrsta, iste boje ili nešto bljeđa od šešira. Ne postoji jasna granica između drške i šešira. Lisičarka najčešće raste pojedinačno ili u malim grupama, mada može imati i zbijena, skoro busenasta plodišta. Meso je bijelo do blijedo-žuto. Miris je voćni, poput kajsije, a ukus je blag. Lisičarka je jedna od najpoznatijih i najčešćih jestivih gljiva, koja se kod nas koristi u ishrani. U Crnoj Gori je rasprostranjena i česta u listopadnim i četinarskim šumama, tokom ljeta i jeseni.

ZELENA PUPAVKA

Amanita phalloides

I.Četković

Mlado plodište je jajoliko, potpuno zatvoreno u univerzalni veo, koji potom puca kako gljiva raste. Univerzalni veo je bijele boje i u bazi drške formira slobodnu volvu i povremeno velike krpice po šeširu. Šešir je širok 30-120 mm, radijalno svilenkasto-vlaknast, a boja varira od blijedo žuto-zelene do tamno maslinasto-zelene ili braon-maslinaste. U početku je poluloptast, zatim konveksan do proširen. Površina šešira je malo ljepljiva kada je vlažna i fino radijalno vlaknasta. Listići su bijeli dok su mladi, kasnije blago žućkasti; slobodni, široki i gusti. Drška je 40–150 × 10–20 mm, cilindrična do klavatna, sa 30–45 mm širokom volvom i sa cik-cak mrljama nešto bljeđim od boje šešira. Prsten je membranozan, bjeličast, rjeđe blijedo zelenkast. Baza je okružena velikom bijelom volvom koja je iznutra često zelena. Miris je slatkast i vremenom postaje neprijatan. Zelena pupavka je smrtno otrovna vrsta. U Crnoj Gori raste u listopadnim (prvenstveno bukovim i hrastovim) šumama, pojedinačno ili u grupi od po nekoliko plodišta, tokom ljeta i jeseni.

Zelena pupavka je jedna od najotrovnijih vrsta gljiva na planeti, te zbog toga na ovoj izložbi ima posebno mjesto. Smatramo da bi prvi korak u proučavanju jestivih i otrovnih gljiva trebao biti detaljno upoznavanje sa morfološkim karakterima ove smrtno otrovne gljive. Zbog zelene boje šešira (od tamno zelene do blijedo žuto zelene) lako ju je moguće zamijeniti sa nekim vitezovkama (*Tricholoma equestre , T. sejunctum*), kao i sa nekoliko jestivih krasnica (*Russula heterophylla, R. aeruginea, R. virescens i R. cyanoxantha*), koje se javljaju na istim staništima i u istom periodu godine kada i zelena pupavka. Osim zelene boje šešira, osnovni karakteri po kojima je zelena pupavka prepoznatljiva su bijeli listići, membranozni bijeli prsten i velika bijela volva koja obavija bazu drške. Međutim, katkada se mogu pronaći i potpuno bijela plodišta zelene pupavke. Dok je u početnoj fazi svog razvića, tj. dok je plodište jajoliko, potpuno zatvoreno u univerzalni veo, lako se može zamijeniti sa puharama. Ako se takvo plodište prereže uzdužno na pola, na presjeku će se uočiti nerazvijeni listići i blijedo žuto-zelena boja kožice šešira, dok je kod puhare vidljivo jednolično bijelo meso. Iako je iz zelene pupavke izolovano više različitih otrova, najjači i najopasniji je α-amanitin (spada u amatoksine) koji izaziva teška oštećenja jetre i bubrega. Ovaj opasan otrov nije termolabilan, tj. nikakva termička obrada plodišta neće umanjiti njegovo otrovno dejstvo. Takođe, amatoksini su otporni i na zamrzavanje na niskim temperaturama, te na sušenje. Simptomi trovanja zelenom pupavkom počinju relativno kasno, 6 do 12 sati nakon konzumacije, kao stomačne tegobe poput bolova u želucu, mučnine i dijareje. Kada se već čini da je sve prošlo sa relativno lakim simptomima u prvih 24 sata, naknadno se javljaju teška oštećenja jetre i bubrega, te nastupa koma i smrt kod najtežih trovanja (u 10-30% slučajeva). Procjenjuje se da je 30 grama, tj. polovina šešira ove gljive dovoljno da ubije odraslog čovjeka (djeca su znatno osjetljivija).

DEATHCAP

Amanita phalloides

I.Četković

The whole fruitbody is ovoid and completely enclosed in a white universal veil when young; the veil soon breaking. Universal veil is white and forming a free volva; occasionally large patches on the cap too. Cap 30–120 mm broad, radially silky-fibrillose; ranging from pale yellow-green to deep olive-green or brown-olive; hemispherical, then convex to expanded. Surface of cap somewhat viscid when moist and finely radially fibrillose. Gills white when young, yellowish in age; free, broad and crowded. Stem 40–150 × 10–20 mm, cylindrical to clavate with a 30–45 mm broad basal bulb; with zig-zag mottling slightly paler than the color of the cap. Annulus membranous, whitish, more rarely pale greenish. Base of stem is surrounded by a large white volva, that is often tinged green inside. Odor sweetish; unpleasant when old. This is a deadly poisonous species. Deathcap appears solitary to gregarious under deciduous trees, mainly in Fagus and Quercus forests in Montenegro, during summer and autumn.

Deathcap is one of the most poisonous mushroom on the planet, and therefore has a special place in this exhibition. The first step in the study of edible and poisonous fungi should be getting to know the morphological features of this deadly poisonous mushroom. Due to the green color of the cap (from dark green to pale yellow-green) it can be easily confused with some knights (*Tricholoma equestre, T. sejunctum*), as well as with several edible brittlegills (*Russula heterophylla, R. aeruginea, R. virescens and R. cyanoxantha*), which occur in the same habitats and at the same time of year as the deathcap. In addition to the green color of the cap, deathcap is recognizable by the white gills, membranous white ring and the large white volva around the base of the stem. However, sometimes completely white fruiting bodies of the deathcap can be found. In the initial phase of its development, fruiting body is ovoid (completely enclosed in an universal veil), and than can be easily confused with puffball mushrooms. On the cross section of the young fruiting body of the deathcap can be seen undeveloped gills and pale yellow-green color of the skin of the cap, while the flesh of puffball is entirely white. Several different toxins have been isolated from the deathcap, but the strongest and most dangerous is α-amanitin (from the group of amatoxins), which causes severe liver and kidney damages. This dangerous poison is not thermolabile, so thermal treatment of the fruiting body will not reduce its toxic effect, as well as freezing or drying. Symptoms of deathcap poisoning begin 6 to 12 hours after consumption with the stomach problems such as stomach ache, nausea and diarrhea. After relatively mild symptoms in the first 24 hours, severe liver and kidney damage subsequently occurs, as well as coma and death in the most severe poisonings (in 10-30% of cases). It is estimated that half of the cap (about 30 g) of this mushroom is enough to kill an adult, while children are much more sensitive to these toxins.

JACK-O'-LANTERN MUSHROOM + ⚠ *Omphalotus olearius*

Cap 30–100 mm broad, convex at first, later plane and indented in the center, with incurved margin, eventually developing an upturned wavy margin. Surface smooth to radially fibrillose, shiny; almost always has dark orange to brown orange tones on the cap (at least at centre). Gils strongly decurent, crowded and broad (4–9 mm) with sharp and regular edge (sometimes forked); yellow at first, later orange. Stem 40–150 × 7–28 mm; central or somewhat eccentric; smooth, orange; tapering and darkening towards the base. Smell strong and unpleasant. *Omphalotus olearius* is a poisonous mushroom. It contains the poison muscarine, so although it is not a deadly poisonous species, it can cause serious stomach problems for several days. It usually grows bushy with more fruiting bodies, but sometimes single or with only few fruiting bodies. It is protected species in Montenegro. Appears in deciduous forests, during summer and autumn. Jack-o'-lantern mushroom is an unusual fungus whose leaves can emit light that can only be seen in complete darkness (bioluminescence).

Z. Tkalčec & A. Mešić

Cantharellus cibarius CHANTERELLE

I. Ćetković

Cap 10–100 (130) mm knoblike when young, then rounded with a wavy irregular margin. Fruiting body is usually funnel-shaped. Colour varies from light yellow to orange-yellow (like apricot), rarely whitish. Gills are narrow (up to 3 mm), relatively distant, often forked, intervenose or irregular, and with blunt edge. Stem 20–80 × 5–30 mm; cylindrical to somewhat tapered; smooth to finely tomentose and solid; the same colour or somewhat paler then pileus. The stems often grow next to each other, then they are curved and very often joined together near the base. Flesh white to pale yellow. Odor fruit, like apricot. Taste mild. Chanterelle is one of the best known and commonest edible fungi. It is common and widespread in Montenegro in deciduous and coniferous forests, during summer and autumn.

Due to the similar colors of the fruiting bodies and deeply decurrent gills, these two species could be confused. Although the chanterelle usually grows individually or in small groups, it can also have compact, almost bundled fruiting bodies. Jack-o'-lantern mushroom usually grows in bundles with a larger number of fruiting bodies, but it can also develop a small number or a single one. The chanterelle always grows out of the ground, while the jack-o'-lantern mushroom grows on the living or dead wood. Sometimes that piece of wood or a root is buried, or covered with a layer of litter, so that fruiting bodies seem to grow out of the ground. They differ from each other by gills, that are narrow (up to 3 mm), relatively distant, often forked, intervenose or irregular, and with blunt edge in chanterelle, while in the jack-o'-lantern mushroom they are wider (4-9 mm), crowded, with sharp and regular edge (sometimes forked). They also differ in the color of the cap. Chanterelle has pale yellow to orange yellow colors, while jack-o'-lantern mushroom almost always has dark orange to brown orange tones on the cap (at least at centre).

FALSE MOREL +⚠

Gyromitra esculenta

Fruiting body 50–120 mm tall, 50–150 (200) mm across; cap irregularly rounded and flattened, rather like a brain; yellow-red to black-brown, and is usually broader than taller. Stem short, barely 1/4 to 1 /3 the height of the cap, white to creamy-white; fragile; surface finely furfuraceous, strongly furrowed, hollow and chambered. The whole fungus looks like a dirty cloud, often not clearly separated into cap and stem. Flesh fragile, without specific odor or taste. This mushroom is rare in Montenegro. Grows individually or gregariously. It can be found in coniferous forests, around stumps on pastures, during spring and early summer. *Gyromitra esculenta* can be confused with the similar specie *G. gigas*, which is also rare. Reliable separation is possible only by microscopic examination of the mature spores. False morels are highly poisonous fungi that can cause severe poisoning, often with lethal outcome. The first symptoms often include nausea, vomiting, abdominal pain, diarrhea, dizziness, and later even jaundice (coused by hepatoxin), convulsions and eventually coma and death. False morels contain gyromitrin, an organic carcinogenic poison.

N. Matočec

False morel and morels appear at the same time, during spring and early summer, and can be found in the same habitats. Although they seem very similar at first sight, the differences can easily be spotted. Cap of morels is built of chambered depressions reminiscent of honeycombs, while the false morel's cap is irregularly wrinkled, and looks like the cerebral cortex.

MORELS

Morchella spp.

I. Cetković

Those mushrooms have a conical, elliptical or round cap with developed chambered depressions which are a bit like a honeycombs. The whole fruiting body is hollow in cross section. Morels prefer coniferous and deciduous forests, and they can be found individually or in groups, along forest roads and on fire sites, during the spring months (usually in April and May). Fruiting bodies are edible after thermic treatment because they contain thermolabile toxins. Morels are widespread in Montenegro, but the abundance is conditioned by large number of different factors, so they sometimes appear in large number, and sometimes they are absent or appear in very small numbers. They are often used in our diet.

FOOL'S FUNNEL

Clitocybe rivulosa

Cap 10–60 mm broad, convex to plane or slightly depressed, white, usually developing a slight buffish tinge with age; smooth and silky when dry. With age faint concentric rings often become apparent on the cap surface. Gills broadly adnate to short decurrent, crowded; pale buff. Stem 15–40 × 3–8 mm, cylindrical, cream to pale buff. Odor sweetish but not distinctive. The Fool's Funnel appears in grassy habitats, in unimproved grassland, forest edges, parks, ruderal areas; often in large fairy rings, during summer and autumn. It has been recorded at several localities in Montenegro. *Clitocybe rivulosa* is a very poisonous mushroom which contains the poison muscarine. The first signs of poisoning appear very soon after consumption in the form of nausea, stomach pain, as well as blurred vision and difficulty breathing.

Z. Tkalčec & A. Mešić

FAIRY RING CHAMPIGNON

Marasmius oreades

I. Ćetković

Cap 10–50 mm broad, campanulate to convex, flattening with a broad umbo, irregularly undulating margin; hygrophanous; orange-ocher to reddish brown, drying pale. Gills medium spaced, whitish to cream-colored. Stem 40–80 × 2.5–6 mm, white or buff, darkening towards the base; cylindrical, base sometimes slightly swollen, smooth and dry. Odor pleasantly aromatic. Taste mild. This edible mushroom is widespread and very common in Montenegro on meadows and pastures; often in large fairy rings in grassland; during summer and autumn.

Both of these species appear in meadows during summer and autumn. The fruiting bodies of these two species are similar in color, and can form so-called fairy rings, which sometimes can be found next to each other. This two species can be most easily distinguished by the gills, which are quite distant and free in the fairy ring champignon, while in fool's funnel are crowded and adnate to somewhat decurrent. Also, the stem of the fairy ring champignon is twice as long as the stem of fool's funnel.

FLY AGARIC

Amanita muscaria

Fruiting body completely covered with the white universal veil when young. Cap 60–200 mm spherical at first, than convex to expanded; surface red to pale orange and covered with concentric, conical, white velar warts which can sometimes disappear. Margin incurve for long time. Gils white and broad. Stem 80–250 × 10–25 mm, cylindrical to clavate; white; pruinose to floccose, and with an up to 50 mm broad basal bulb with concentrical rings of volval scales. Annulus membranous, white with a yellowish margin. Smell not distinctive. This poisonous mushroom is frequent and widespread in deciduous and coniferous forests in Montenegro, during summer and autumn. *Amanita muscaria* contains the psychoactive alkaloids muscimol and ibotenic acid, as well as muscazone and muscarin. Consuming this mushroom can cause various symptoms: from drowsiness, nausea, hallucinations, to euphoria and dizziness. Which of the symptoms will be most pronounced also depends on the amount of toxin introduced into the body. If the fly agaric is consumed raw, it causes severe stomach pain.

I.Ćetković

COMMON PUFFBALL

Lycoperdon perlatum

I. Ćetković

Fruiting body pyriform, subcylindric to stipitate; 15–40 mm in diameter, 40–90 mm tall. White to cream when young; with pyramidal warts (or 'pearls') of different sizes, later ochraceous to pale greyish brown. When they fall off they leave delicate olive-brown scars on the surface. The pore hole developes on the dark area at the apex, and through it the mature spores are released. This is edible mushroom, but only as a youngy, when the flesh is white on the cut. Smell and taste pleasant. This species is widespread in all types of forests, and in the meadows in Montenegro during summer and autumn.

Fly agaric is one of the most common and easily recognizable mushroom, especially in its typical form (red cap with white warts and white stem). However, in the initial stage of development (in the form of "egg") the fruiting body of this species can be easily confused with a common puffball. Undeveloped gills and orange to red color of the skin of the cap can be seen on the cross section of the young fruiting body of the fly agaric, while the flesh of common puffball is uniform and entirely white. In addition, common puffball has significantly smaller warts on the upper part of the "egg" than the fly agaric.

DEVIL'S BOLETE

Rubroboletus satanas

Cap 60–200 (300) mm broad, pale ash grey or silvery grey; hemispherical when young, then plano-pulvinate. Cap becoming brownish with age or rarely brownish all the time, with or without some marginal pink. The yellow tubes terminate in pores that are yellowish in very young fruitbodies, but soon turn orange and eventually red as the spores mature. Stem 40–140 × 40–60 (100) mm, cylindrical or more often bulbose, yellow at the apex, increasingly carmine-red below or all over, with a fine red reticulum at least on upper half. The flesh is thick, spongy and whitish, but may be yellow to straw-coloured in immature specimens or sometimes reddish at the stem base. When cut it slowly turns a faded blue (bluing more around the apex and above the tubes) and then returns to its original grayish-white color. Smell unpleasant, of ammonia, urine or rotting cabbage. Devil's Bolete grows in deciduous forests, most often in beech and oak forests, during summer and autumn. In Montenegro, it is protected species and registered at several locality. *Rubroboletus satanas* is a poisonous mushroom, especially if consumed raw. It contains the toxic enzyme bolesatine, which causes severe gastrointestinal symptoms that include abdominal pain, violent vomiting and bloody diarrhea that can last up to six hours.

Z. Tkalčec & A. Mešić

Penny bun is one of the most common edible mushrooms in Montenegro and most often used in the diet. Although these two species have a very similar fruiting body shape, it is unlikely to be confused, because devil's bolete has a red stem and pores, and the flesh slowly turns blue when injured, while the penny bun does not have such characteristics (stem and pores are not red and flesh do not change color). Also, devil's bolete grows only in deciduous forests and has a very unpleasant smell, while the penny bun has a pleasant smell and grows in both deciduous and coniferous forests.

Boletus edulis

PENNY BUN

I. Ćetković

Cap 50–200 (400) mm broad, hemispherical when young, later convex to plane and pulvinate; greasy when wet; color varies from almost white to pale brown or brown, sometimes yellow brown or red brown. Surface smooth, finely tomentose, areolate when dry, slightly lubricous when moist. Margin even and incurved for a long time. The tubes white when young, then pale yellow or olive-brown and are easily removed from the cap; they end in very small white or yellowish pores. When cut or bruised, the pores and tubes do not change colour. Flesh white and firm when young, brownish under the cuticle when old, spongy. Odor pleasantly fungoid. Taste mild, nutty. Stem 40–150 × 20–50 (70) cylindric, ventricose or clavate, with a white reticulum on a pale brown background. Penny bun is an edible mushroom that is most often used in our diet. It is common and widespread in Montenegro. The fungus grows in hardwood and coniferous forests, along forest edges, solitary to gregarious, during summer and autumn.

PANTHERCAP

Amanita pantherina

Cap 50–100 mm broad, hemispherical at first, later convex to expanded, yellowish brown to shiny brown; surface somewhat lubricous when moist, with a very finely striate margin. On the surface of the cap are white warts, remnants of a universal veil. Gills free, white, broad. Stem 60–100 × 10–20 mm, white, cylindrical with a pronounced edge of the bulb; fibrillose. Annulus white, membranous, not striate. Smell not distinctive, but when bruised the flesh smells slightly of radish. Inhabits deciduous and coniferous forests in Montenegro, during summer and autumn. Fruiting bodies grows either individually or at most two or three together. Panthercap is a deadly poisonous mushroom with dangerous psychoactive substances (such as ibotenic and muscimol) contained in the cap. The toxins are easily and quickly absorbed from the gastrointestinal tract, and the first symptoms are anxiety and confusion, hallucinations and hyperkinetic behavior. Further symptoms include dilated pupils, dry and red skin, high blood pressure, tachycardia, and acute respiratory failure in the later stages of poisoning, which in most cases ends in death. The symptoms depend on the condition of the organism and the amount of toxins ingested.

I.Ćetković

These two species are morphologically similar and can easily be confused. Also, both occur in deciduous and coniferous forests during summer and autumn. The panthercap always has white warts on the cap, a white stem with a thin white annulus and a pronounced edge of the bulb. On the other hand, the warts on the blusher's cap are beige to dirty pink, the stem is with a wide membranous annulus, and there is no clear boundary between the bulb and the stem. The edge of the panthercap's cap is striate, unlike the annulus, and the gills are white, while the blusher's cap has a flat edge, the striate annulus, and the white gills become pink with reddish spots with age. The blusher's fruiting body always changes its color to reddish or wine red on injury after a while, while in the case of the panthercap, these parts of the fruiting body are always white.

Amanita rubescens

BLUSHER

I. Ćetković

Cap 50–150 mm hemispherical when young, then convex to expanded, ocher-brown to reddish-brown, somethimes pale ocher when young, with usually concentric, beige to dirty pink warts, fragments of the universal veil on the cap. Flesh white, very slowly turning brownish red when bruised. Gills white, broad and crowded; in mature specimens the gills are often marked with pink or rusty red spots. Stem 60–150 × 15–40 mm, with white striate annulus, cylindrical to clavate. There is no clear boundary between the bulb and the stem. Surface whitish to reddish-brown above the annulus, but reddish-brown below, often with deep pink flecks. The blusher's fruiting body always changes its color to reddish or wine red on injury after a while. Blusher is an edible mushroom; it is widespread in deciduous and coniferous forest in Montenegro, during summer and autumn. Sometimes so numerous as to "overcrowd" the woods.

YELLOW STAINER

Agaricus xanthodermus

Cap 50–130 mm broad, bell-shaped to angular, expanding to plane; surface smooth and dull; white, when sun-exposed often turning mouse grey and eventually cracking radially into irregular patches. Margin incurved for a long time. Gills pale pinkish grey, dark age purple-brown; crowded. Stem 50–100 × 10–15 mm, cylindrical, bulbous at the base, with a large membranous annulus with scaly underside. The whole fruiting body turns lemon yellow when rubbed; the yellowness is especially strong at the base of the stem, both inside and out. Smell carbolic, especially when the flesh is bruised or cut. The smell is particularly strong when the base of the stem is cut. This poisonous mushroom contains toxins which can cause serious gastric problems, nausea, vomiting, sweating and diarrhea. In Montenegro it usually grows under hedgerows and at the edges of forest; often in small groups, but occasionally singly, during summer and autumn.

Z. Tkalčec & A. Mešić

MACRO MUSHROOM

Agaricus urinascens

Z. Tkalčec & A. Mešić

Cap 100–250 mm broad, hemispherical when young, then expanded and plane; smooth to fibrillose but often cracking due to drought, sometimes into pyramidal warts. White at first but becoming pale ochre and yellowing slightly, especially near the margin, which is incurved for a long time. Gills pale pink when young, soon purple to dark brown; broad and crowded. Stem 50–100 × 25–35 mm, cylindrical, with annulus, surface white, later discoloring ocherish to brownish; smooth above the annulus, below the annulus girdled with flocci-squamules. In case of injury, the surface of the cap may get yellow shades, but the flesh at the base of the stem on the cross-section remains white or slightly changes color from pinkish to brownish. Smell faint of almonds. Taste mild, anise-like-nutty. Macro mushroom is an edible mushroom. It is a common species in meadows and open spaces in forests, in Montenegro, during summer and autumn.

These two mushrooms are macroscopically very similar and can be easily confused. Both appear at the same time of year, and although the yellow stainer is primarily a forest species, it can also be found in meadows and pastures, the habitat of macro mushroom. Yellow stainer has somewhat smaller cap and a slender stem. It has a strong and very unpleasant smell of carbol, and in the case of thermal treatment, the unpleasant smell gets stronger. In cross section, the flesh at the base of the stem immediately become lemon yellow. On the other hand, macro mushroom has a larger cap and a much wider stem, as well as a mild pleasant almond scent. In case of injury, the surface of the cap may get yellow shades, but the flesh at the base of the stem on the cross-section remains white or slightly changes color from pinkish to brownish.

FUNERAL BELL

Galerina marginata

Cap 5–50 (70) mm broad, hemispherical, with incurved margin when young, later convex to plane and slightly indented in the center; surface smooth, sticky to shiny when moist, reddish to ochre, yellow brown to red brown when moist, yellow-ochre when dry. Often somewhat striate when moist; hygrophanous. Gills adnate, broad; light ochre when young, late yellow brown. Stem 20–70 × 1–5 (10) mm, cylindrical, with fibrillose to membranous annulus; surface silky white beige at top, below annulus downwards greyish brown to dark brown; longitudinally fibrillose or with lighter, fibrous patterns. The annulus sometimes disappears with age. Smell farinaceous. It is common and widespread species in deciduous and coniferous forests in Montenegro during spring and autumn. Funeral bell is deadly poisonous mushroom which contains the dangerous amatoxins. The first symptoms of poisoning begin 6 hours after consumption in the form of fever, nausea and vomiting. Without medical treatment, the liver can be destroyed, and in most cases can end in death.

I.Ćetković

SHEATHED WOODTUFT

Kuehneromyces mutabilis

I. Ćetković

Cap 10–60 mm broad, glabrous, convex-umbonate when young, soon campanulate with an obtuse umbo, only slightly viscid or dry, obtusely bell-shaped, for long time with incurved margin; yellowish brown but at the centre soon fading to pale yellow, with small projecting scales on the surface. Often with a distinctly bounded zone near the darker marginal region, distinctly hygrophanous, sometime translucently striate when moist. Gills adnexed, broad, crowded; ligt ocher when young, later becoming rusty. Stem 40–100 × 3–12 mm, with annulus (brown colored from fallen spores), cylindrical, surface above the annulus pale cream-colored, surface the area below the annulus brown-squarrose on an ocher background and presence of the small projecting scales; while towards the base it is dark brown, longitudinally fibrillose. Smell fungoid. Taste mild. It is an edible mushroom; common and widespread in Montenegro during spring and autumn.

These two species are very similar. Both occur on stumps and fallen trunks (sheathed woodtuft almost always on deciduous) during summer and autumn. Sheathed woodtuft always grows in bundles, while funeral bell more often grows individually or in groups of separate fruiting bodies, but sometimes can be found in bundles as well. Fruiting bodies are similar in color and size, and have a gentle annulus on the stem. Macroscopically, they can be differed from each other by the presence of the small projecting scales on the surface of the stem in the area below the annulus in sheathed woodtuft, as well as similar scales in the outer zone of the surface of the cap (which often disappear in mature fruiting bodies). On the other hand, the funeral bell has a stem surface only longitudinally fibrillose or with lighter, fibrous patterns (without scales), and smooth cap surface. These two mushrooms can also be distinguished by their smell: sheathed woodtuft has fungoid smell, while funeral bell smells like flour.

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ORNAMENTS OF NATURE - POISONOUS AND EDIBLE ONES

Fungi have long been considered simple plants for their ability to absorb nutrients from the substrate and because they cannot move. Due to a number of characteristics that separate them from plants and animals, fungi are classified as their own kingdom (Fungi). They have an irreplaceable ecological role in nature: without them, there would be no circulation of carbon and other biogenic elements in the biosphere, and the planet would not be as we know it today. Although bacteria are also involved in the decomposition of dead organisms, fungi are crucial in the decomposition of plant debris, which is especially important in forest ecosystems. Some fungi are very important in the health and growth of plants because they connect their mycelium (the body of the fungus in the substrate) with the roots of plants, helping them to absorb water and minerals (phosphorus and nitrogen).

In addition to the great ecological importance they have, some fungi stand out for their attractiveness, so we can consider them a kind of ornament of nature. While we can prepare a delicious meal with some mushrooms, eating some of them can lead to inevitable death. Edible mushrooms contain a lot of nutrients: from protein, carbohydrates, dietary fibers to vitamins and minerals. They are good for our brain, heart, immune and digestive systems, and some are believed to have anti-cancer effects.

On the other hand, there are the poisonous ones, whose role in nature is of no less significance than the edible ones', as well as those that we consider inedible or edibility and toxicity are unknown. The question is: why are they poisonous? This is another unknown of this kingdom. We know that many species of animals and plants have created toxic substances during evolution in order to defend themselves from predators, while this is not the case with fungi. Many poisonous species are beautiful and with striking colors, but there are also those that are neutral and inconspicuous. Additionally, edible mushrooms can have the same or very similar shades. Both can have pleasant smell and taste, as well as unpleasant ones. Some organisms (such as snails and insects) can eat poisonous fungi as much as they want, but it could be extremely dangerous for humans. This means that there is no general rule to distinguish poisonous from edible mushrooms, so the only rule is that there are no rules! It is very important to know and recognize the characteristics of the edible mushrooms we want to collect, which is necessary to reliably distinguish them from similar poisonous or inedible ones.

In the following pages, we will try to help you solve some doubts and provide some practical advices, in order to avoid confusion between some poisonous mushrooms and similar species that can be consumed.

I would like to thank everyone who contributed to the realization of this exhibition. Special thanks to my dear colleagues Zdenko, Armin and Neven for the photographs of mushrooms.

Ilinka

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