ALUMNI *KeMo*

GLASNIK 2024

Lipanj 2024.
Alumni Odjela za kemiju
Sveučilišta u Osijeku

Uvodnik

Dragi čitatelji,

Pred Vama se nalazi treći i ujedno zadnji broj Glasnika pod ovim vodstvom Udruge. Naime, u svibnju 2024. godine održana je izborna sjednica Skupštine Udruge Alumni KeMo na kojoj je izabrano novo vodstvo Udruge. Nova predsjednica Udruge je Marija Paurević, prvi podpredsjednik je Milenko Korica, drugi podpredsjednik Mario Komar. Za tajnika Udruge izabrana je Maja Karnaš, za administratora Hrvoje Babić. Članovi Upravnog odbora su Dominik Goman, Nikolina Filipović, Martina Medvidović-Kosanović i Martina Šrajer Gajdošik.

Članci u 3. broju glasnika se odnose na događaje i aktivnosti u kojima su sudjelovali naši alumni i studenti Odjela za kemiju u periodu od siječnja do lipnja 2024. godine.

Inače, u prva dva mandata odrađeno je 134 različitih aktivnosti. Tako su u organizaciji Alumni KeMo održana 43 predavanja i 7 radionica za članove Udruge te su organizirana 4 okrugla stola. U sklopu popularizacije realizirano je 68 aktivnosti, i to 55 radionica, 7 predavanja, izrađena su 4 postera, 2 predstavljanja Udruge (studentima Odjela za kemiju i pomoću projekta Dobra strana Hrvatske). Organizirano je 9 gostovanja (Centar za pružanje usluga u zajednici Klasje, Institut za medicinska istraživanja i medicinu rada 2023. i 2024., Unikom d.o.o., STEM-Lab OŠ „Mladost“, STEAM centar, III. gimnazija Osijek, OŠ Miroslava Krleže Čepin). Pokrenuta je objava Alumni KeMo Glasnika i objavljena su 3 broja, u sklopu kojih su osmišljene rubrike od interesa za širu publiku, kao što su *Alumni album*, *Journal Club*, *Alumni KeMo predstavlja* i *Razgovor s povodom*. Osim toga, od osnutka Udruge, 2020. godine, do sada broj članova se povećao za 137 %.

Hvala svima koji su sudjelovali u kreiranju i realizaciji aktivnosti Udruge te svima koji su sudjelovali u kreiranju ovog broja Glasnika.

Novom vodstvu Udruge želimo puno sreće u budućem radu Udruge i još veću produktivnost!

Srdačan pozdrav,
Ana

ALUMNI KEMO

GLASNIK 2024.

Lipanj 2024.
Alumni Odjela za kemiju
Sveučilišta u Osijeku

KONTAKT

alumni@kemija.unios.hr

031/399-950

www.kemija.unios.hr/index.php/o-alumni-kemo/

Osijek

Odjel za kemiju
Sveučilište u Osijeku
Ulica cara Hadrijana 8/A
31000 Osijek

SADRŽAJ

1. Aktivnosti

OD OSNUTKA UDRUGE NAŠI ALUMNI AKTIVNO RADE NA OBJAVI ZNANSTVENIH I STRUČNIH RADOVA, SUDJELUJU U KONFERENCIJAMA, PROJEKTIMA I RADIONICAMA.

U nastavku donosimo kratki popis nekih aktivnosti naših alumna odrađenih i objavljenih u periodu do lipnja 2024. godine. Više o radovima i same radove možete naći u CROSBI i CroRIS bazama.

1.1. Znanstveni i stručni radovi, konferencije, projekti i radionice

Objavljeni znanstveni i stručni radovi

1. **Goman, Dominik**; Danković, Valentina; **Galović, Olivera**; **Medvidović-Kosanović, Martina**
Electrochemical characterization and detection of vitamin E in real samples
Croatian journal of food science and technology, 16 (2024).

2. **Goman, Dominik; Stanković, Anamarija; Galović, Olivera**; Njegić Džakula, Branka; Kontrec, Jasminka; **Medvidović-Kosanović, Martina**
Complexation of gallic acid with calcium: electrochemical, potentiometric, and UV-VIS studies
Analytical methods, 16 (2024), 391-395.
doi: 10.1039/d3ay01586f

Izlaganja na konferencijama

1. **Goman, Dominik; Medvidović-Kosanović, Martina; Stanković, Anamarija**; Njegić-Džakula, Branka; Kontrec, Jasminka
Influence of gallic acid on the spontaneous precipitation of calcium carbonate
5th Young Scientists' Day Conference, Osijek, 2023. (usmeno priopćenje)

2. Jovanović, Anamaria; Jelavić, Ivana; **Goman, Dominik; Stanković, Anamarija; Medvidović-Kosanović, Martina**
Electrochemical characterization of vitamin B12 and serotonin
14. međunarodni znanstveno-stručni skup Hranom do zdravlja, Osijek, 2023. (postersko priopćenje)

3. Danković, Valentina; **Goman, Dominik; Galović, Olivera; Medvidović-Kosanović, Martina**
Electrochemical characterization and detection of vitamin E in real samples
14. međunarodni znanstveno-stručni skup Hranom do zdravlja, Osijek, 2023.
(postersko priopćenje)

Sudjelovanje u projektima

Regionalni znanstveni centar Panonska Hrvatska

- suradnici: Sveučilište u Osijeku, Odjel za kemiju

- period: 1. 7. 2022. - 14. 4. 2024.

Radionice

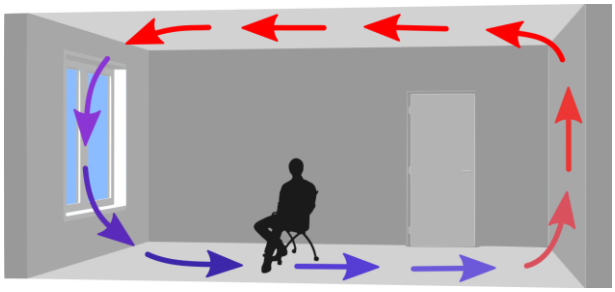
1. Radionica „*Veličine i njihove veze – Spektrofotometrija*“

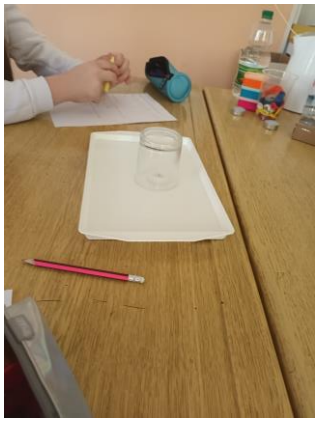
- radionica održana na Odjelu za matematiku (4. 5. 2023. i 16. 5. 2023.)
- izvođači na radionici: Vlatka Gvozdić, **Anamarija Stanković**, **Dominik Goman** i **Martina Medvidović-Kosanović**

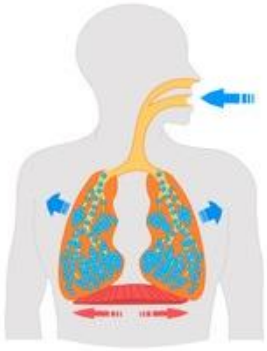
2. Radionica „*Zelena kemija – Bubrežni kamenci u laboratoriju*“

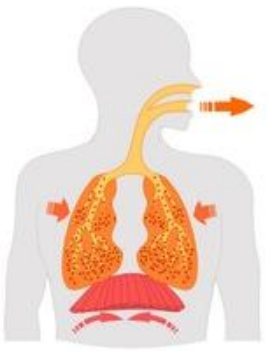
- radionica održana na Odjelu za kemiju (24. 5. 2023. i 7. 6. 2023.)
- izvođači na radionici: **Anamarija Stanković**, **Dominik Goman**, **Martina Medvidović-Kosanović**

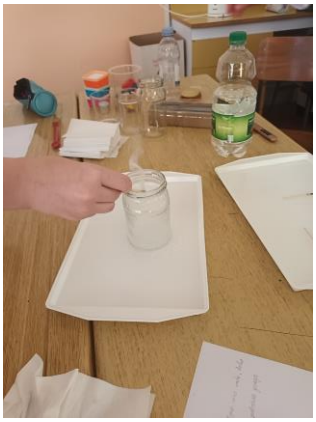
Alumni KeMo
Radionica *Zrak*
OŠ Frana Krste Frankopana
25. 1. 2024., 13:10-14:00 h

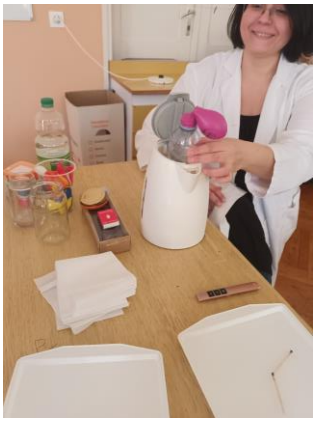








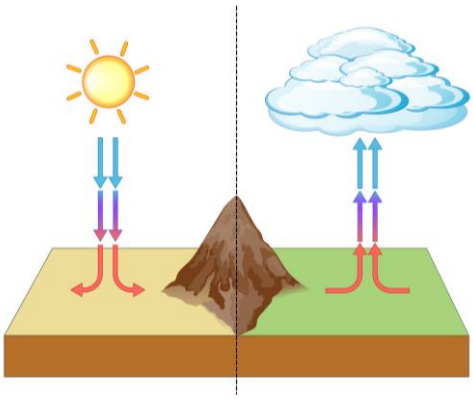




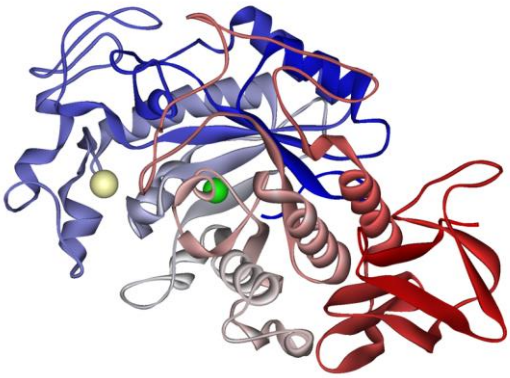
Alumni KeMo

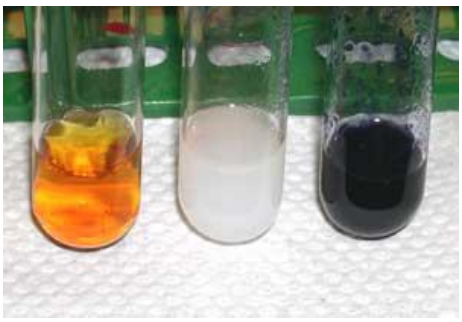
Radionica *Rad u kemijskom laboratoriju*,
Osnovne laboratorijske tehnike i sigurnosne mjere
OŠ Frana Krste Frankopana
30. 1. 2024., 13:10-14:10 h

Alumni KeMo
Radionice *Zrak*
STEAM centar
1. 2. 2024., 16:00-19:00 h

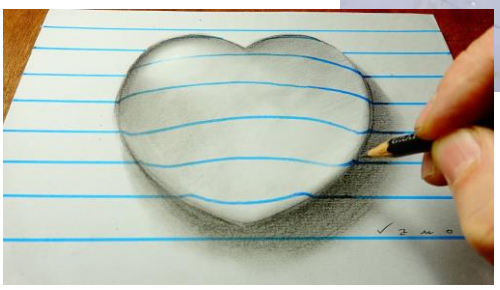


Alumni KeMo
Radionica *Superjunaci*
OŠ Frana Krste Frankopana
7. 2. 2024., 13:00-14:00 h

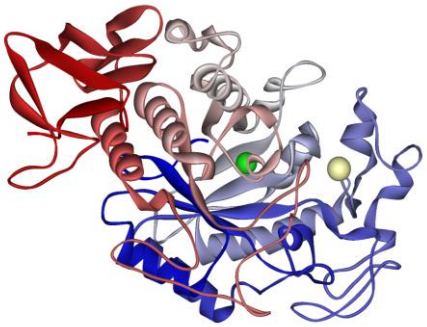


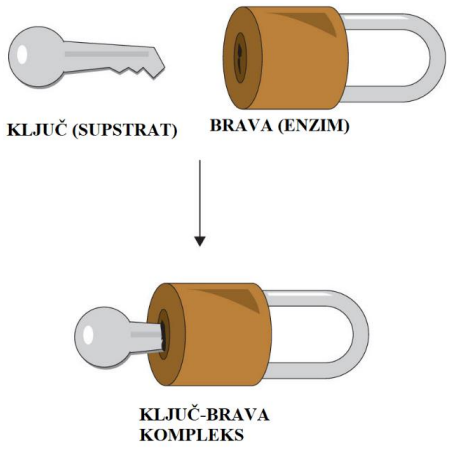


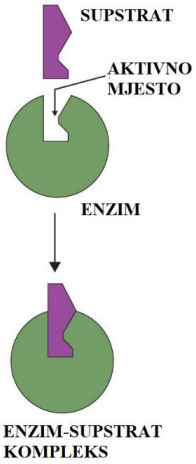
Alumni KeMo
Radionice *Kemijsko valentinovo*
STEAM centar
8. 2. 2024., 16:30-19:00 h

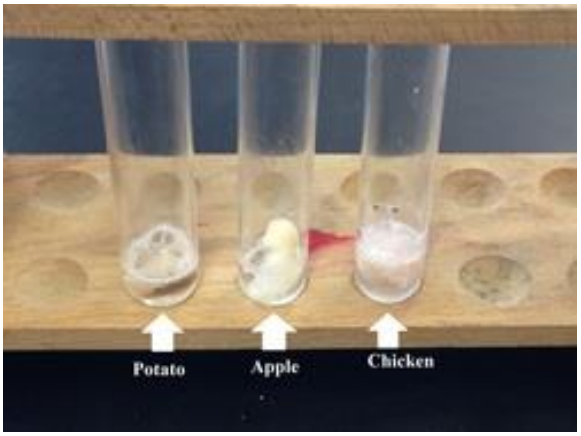


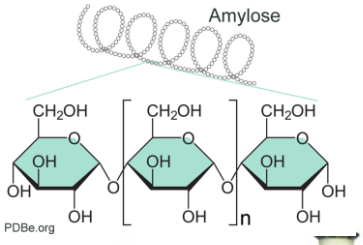
Alumni KeMo
MasKEMbal
Odjel za kemiju, 9. 2. 2024.
Ana Amić, Anamarija Stanković,
Nikolina Filipović i Ivona Đuranović

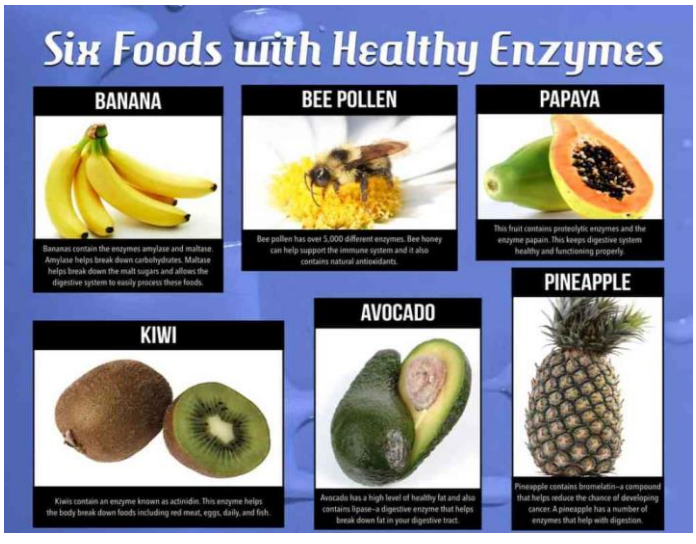










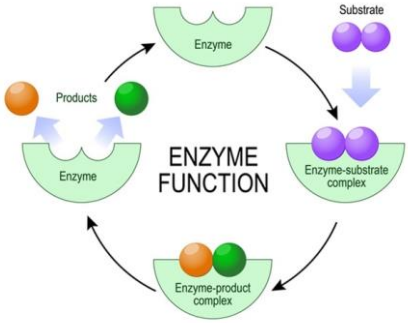


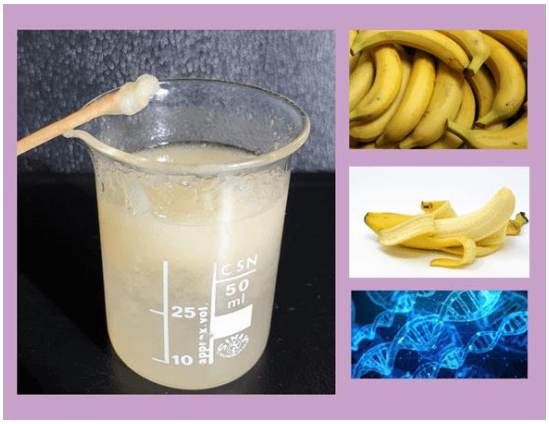
Alumni KeMo

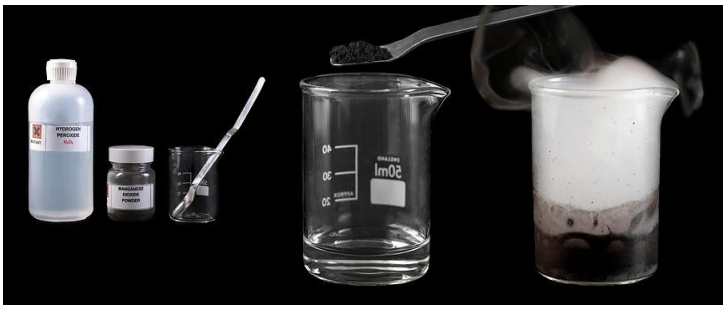
Radionica *Kemijska munja*

OŠ Mladost

12. 2. 2024., 14:30-15:30 h





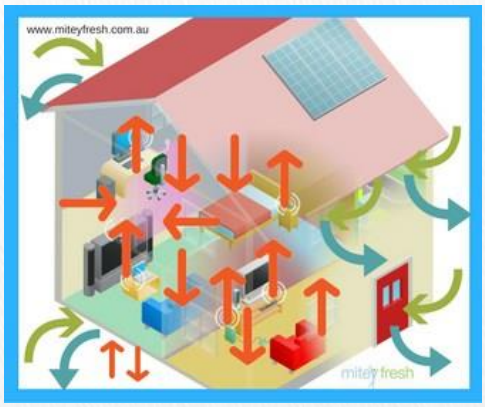


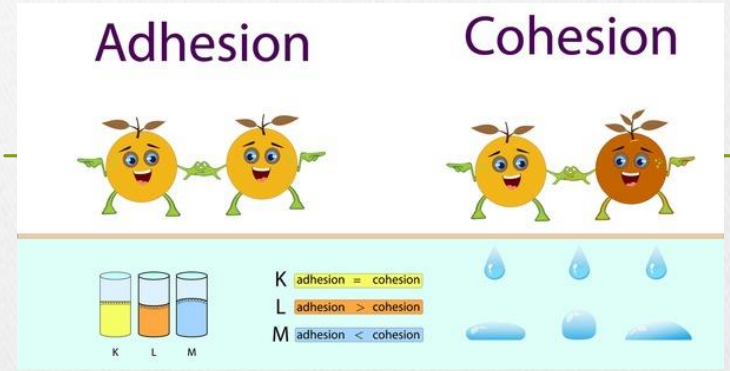
Alumni KeMo

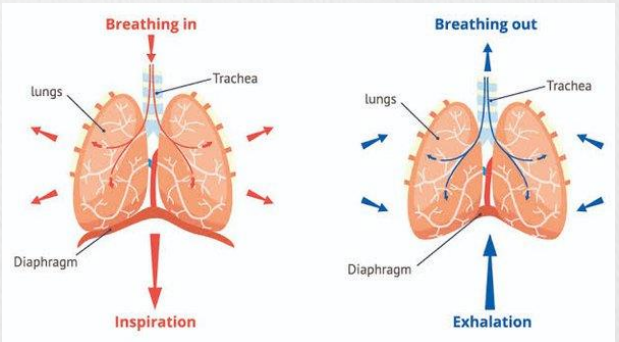
Radionica *Svojstva i kemija zraka*

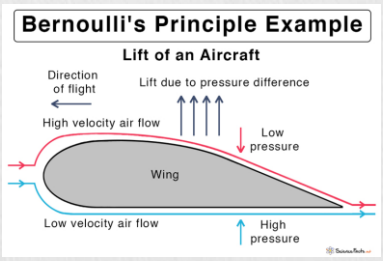
OŠ Frana Krste Frankopana

15. 2. 2024., 13:00-14:00 h



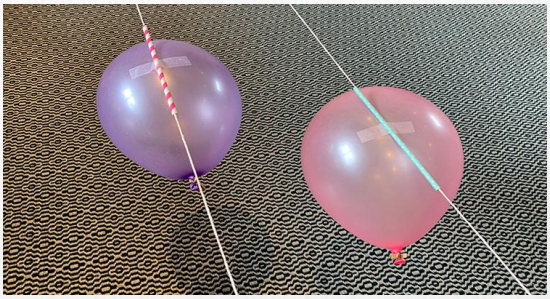
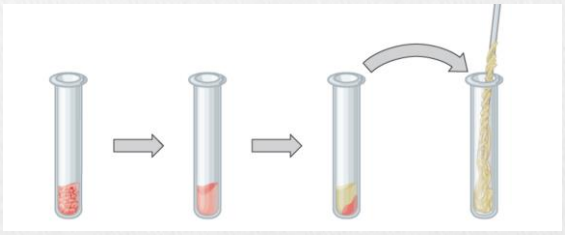


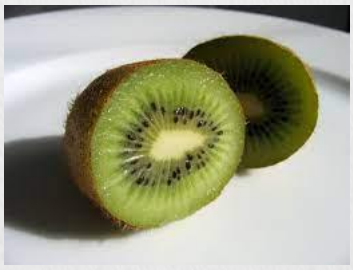




Alumni KeMo
Radionice *Superjunaci*
STEAM centar
22. 2. 2024., 16:30-19:00 h






ALUMNI KeMo I *TJEDAN MOZGA* 2024.

RADIONICE

11. 3. 2024.

Super znalac, kemijski metalac, Helena Vlaškovac, Katarina Vlaškovac, Anamarija Stanković, Ana Amić

Radionica povezuje kemiju i matematiku u rješavanju zanimljivih mozgalica. Mozgalice su kombinacija pisanja, računanja i kemijskih pokusa. Pokusi su lagani, jednostavni i sigurni za djecu, a osim kemije uključuju i matematiku.

12. 3. 2024.

Zašto volim čokoladu?, Ana Amić, Anamarija Stanković Ema Vlahović, Ivona Đuranović, Jelena Brdarić Kosanović

Radionica pojašnjava kako mozak doživljava okus hrane. Bavi se pitanjem zašto nam se sviđaju neki okusi i može li mozak prevariti da više uživa u hrani. Neurogastronomija nije toliko poznata općoj javnosti, ali nudi zanimljive odgovore na ova pitanja.

Kemija i okusi, Tanja Bašić, Ana Amić

Radionica istražuje vezu između kemije i pojedinih okusa. Kako okusi nastaju, koje molekule sudjeluju u tome, zašto su okusi važni, može li se promijeniti doživljaj okusa? To su pitanja kojima se bavi radionica.

14. 3. 2024.

Kemija i ljubav, Zorica Mohnacki, Ana Amić

Jeste li zapitali zašto pocrvenite i "izgubite glavu" kada ugledate osobu u koju ste zaljubljeni? Odgovore potražite na radionici koja povezuje kemiju s osjećajima, prvenstveno s ljubavi. Upoznajte kemijske spojeve koji nastaju u vašem mozgu i čine vas zaljubljenim. Na kraju radionice, pomoću kratkog kviza, provjerite znate li koji je organ odgovoran za ljubav, srce ili mozak.

Hrana i mozak - školica zdrave prehrane, Marina Dokić, Ana Amić

Radionica pojašnjava vezu između mozga i hrane. Bavi se pitanjem može li hrana pomoći da bolje mislimo, može li loše djelovati na mozak ili može pomoći da lakše pamtimo i učimo. Djeca kroz igru i

osmišljavanje jelovnika za jedan dan uče o sastavu hrane i jela, njihovom utjecaj na zdravlje i bolesti, te o važnosti zdrave prehrane. Na kraju radionice provjerit ćemo naučeno pomoću kratkog kviza.

15. 3. 2024.

Hrana i naš mozak, Ivana Sović, Ana Amić

Radionica je koncipirana kao kviz koji povezuje hranu i mozak. U sklopu radionice složiti će se doručak prema principima mediteranske prehrane. Radionica pojašnjava koje namirnice su biljni a koje životinjski izvor masnoća, raznolikost i kemijski sastav orašastih plodova, cjelovite žitarice, vezu slatkiša i masnoća, te kako doručkom osnažiti funkcije mozga.

Ivana Sović, Ana Amić, 15.3., NZJZ

Alumni KeMo

Radionica *Ah, ta kemija*
OŠ Frana Krste Frankopana
FRANKOPANSKI radoZNALCI
Integrirani znanstveni dan

Osnovna škola
Frana Krste Frankopana Osijek

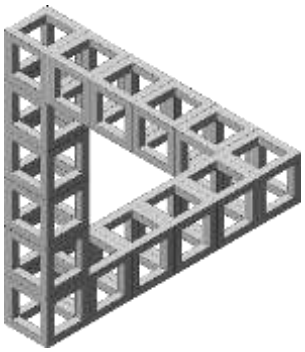
ALUMNI KeMo I *FESTIVAL ZNANOSTI* 2024.

RADIONICE:

22. 4. 2024.

Kemijske mudrolije, Tanja Bašić i Ana Amić

Radionica je na interaktivan način povezala kemiju, biologiju i svijet oko nas s inteligencijom, te je kroz niz „mudrolija“ zaglicala maštu i potaknula učenike na razmišljanje i logičko zaključivanje.



Matematičke avanture u kemiji, Helenom i Katarinom Vlaškovac, Anamarija Stanković i Ana Amić

Ova interaktivna radionica pružila je djeci priliku da istraže svijet matematike i kemije kroz razne zabavne mozgalice i kemijske pokuse. Također, radionica pruža dinamičan program koji potiče dječju znatiželju i kreativnost te otkrivanje novih spoznaja. Mozgalice potiču djecu da razmišljaju izvan uobičajenih okvira i traže kreativna rješenja, što doprinosi razvoju njihovih logičkih vještina. Kemijski

pokusi potiču dječju radoznalost i znatiželju te ih potiču da postavljaju pitanja i istražuju svijet oko sebe. Radionica pruža priliku za suradnju i timski rad, što je važno za razvoj socijalnih vještina kod djece. Zabavni i edukativni sadržaji na radionici pomažu u stvaranju pozitivnog stava prema znanosti i učenju općenito.

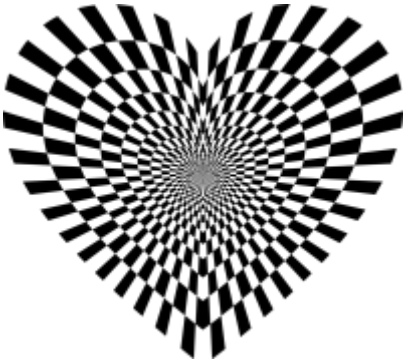
Otisak prstiju u forenzici, Marija Jozanović, Brunislav Matasović, Andrea Dandić, Ivona Đuranović i Ema Vlahović

Forenzička kemija igra ključnu ulogu u rješavanju zločina putem znanstvenih metoda. Jedan od najvažnijih aspekata forenzičke kemije je analiza otisaka prstiju. Otisci prstiju su jedinstveni za svaku osobu i nepromjenjivi tijekom života, što ih čini izuzetno vrijednim dokazom. U radionici su sudjelovali učenici OŠ Svete Ana u Osijeku i OŠ „Retfala“ Osijek, koji su ispitali različite tehnike dokazivanja otisaka prstiju koristeći jod, crni prah, super ljepilo i otopinu ninhidrina.

23. 4. 2024.

Mozgalice – otkrij tko sam, Ana Amić, Anamarija Stanković, Jelena Brdarić Kosanović, Ivona Đuranović i Ema Vlahović

Radionica je putem niza mozgalica publici približila značenje pojma inteligencija, tipovi inteligencije, varke, razmišljanje, snalaženje, apstraktno u usporedbi s realnim, i sl. Korištenjem prethodnih znanja djeca su samostalno rješavala zadatke razne složenosti kojima je cilj bio razvoj raznih tipova inteligencije.



Kemijske mozgalice, Zorica Mohnacki i Ana Amić

Radionica je trajala dva školska sata, a u njoj su sudjelovali učenici 8. razreda. Radionica je obradila pojmove vezane za pojašnjenje inteligencije i raznih tipova inteligencije, sadržavala kemijske mozgalice vezane uz gradivo kemije 8. razreda, a na samom kraju primjere kako koristiti inteligenciju da bi prevarili mozak.

Matematičke avanture u kemiji, Helena i Katarina Vlaškovac, Anamarija Stanković i Ana Amić

Ova interaktivna radionica pružila je djeci priliku da istraže svijet matematike i kemije kroz razne zabavne mozgalice i kemijske pokuse. Također, radionica pruža dinamičan program koji potiče dječju znatiželju i kreativnost te otkrivanje novih spoznaja. Mozgalice potiču djecu da razmišljaju izvan uobičajenih okvira i traže kreativna rješenja, što doprinosi razvoju njihovih logičkih vještina. Kemijski pokusi potiču dječju radoznalost i znatiželju te ih potiču da postavljaju pitanja i istražuju svijet oko sebe. Radionica pruža priliku za suradnju i timski rad, što je važno za razvoj socijalnih vještina kod djece. Zabavni i edukativni sadržaji na radionici pomažu u stvaranju pozitivnog stava prema znanosti i učenju općenito.

Hrana za mozak, Ivana Sović, Ana Amić

Radionica je na zanimljiv i interaktivan način povezala inteligenciju i funkcioniranje mozga s našom prehranom. Jedan dio radionice bio je posvećen nutricionističkom pristupu hrani za mozak, a drugi biokemijskom. Na radionici se moglo čuti puno novih informacija i isprobati zanimljivu hranu, naučiti o sastavu te hrane, dokazati prisutne makronutrijente, te napraviti ukusan obrok koji je primamljiv i nepcu i mozgu.

25. 4. 2024.

Vježbamo mozak, Ana Amić, Anamarija Stanković, Jelena Brdarić Kosanović, Ivona Đuranović i Ema Vlahović

Korištenjem prethodnih znanja djeca su samostalno rješavala zadatke razne složenosti kojima je cilj bio vježbanje mozga, odnosno razvoj raznih tipova inteligencije kroz igru.

Kemijanje i mozganje, Marina Dokić i Ana Amić

Djeca su koristeći sofisticiranu opremu i mozganjem riješila složene zadatke. Radionica je pomoću kemijskih pokusa i korištenjem posebne opreme povezala kemiju, programiranje i inteligenciju.

26. 4. 2024.

Potraga za inteligencijom, Lana Balic, Lana Lazar, Katarina Pisacic, Mateja Hatwagner, Anamarija Stanković, Ana Amić, Nikoline Filipović, Jasmina Tomašić Humer

U uvodnom dijelu radionice saznali smo što je inteligencija i koliko ih postoji te se za svaku naveo po jedan primjer. Osim toga, saznali smo kako i zašto voda „bježi“, kakva je to čarobna boca, kako izgleda lava lampa i kako se različite tvari ponašaju s obzirom na gustoću. Nakon zanimljivih pokusa, ispitali smo znanje pomoću kviza i natjecali u raznim motoričkim vještinama, poput prenošenja vode u žlici.

Alumni KeMo

Radionica *Međunarodni dan **ne**pušenja*

OŠ Frana Krste Frnakopana

23. 5. 2024., 13:00-14:00 h

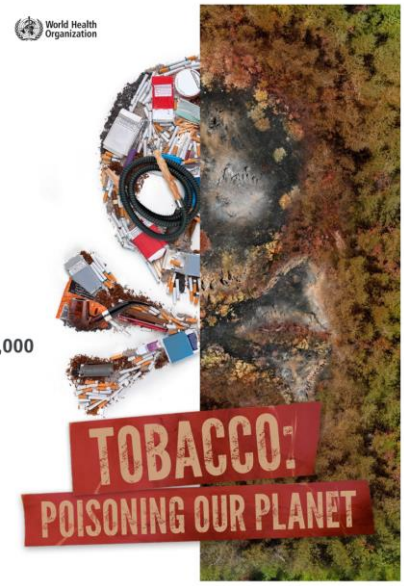
2022.

World No Tobacco Day 2022

600,000,000
Trees chopped down to make cigarettes

84,000,000
Tonnes of CO2 Emissions released into the air raising global temperatures

22,000,000,000
Tonnes of water used to make cigarettes



2023.

349 million
people facing food insecurity

124 countries
growing tobacco

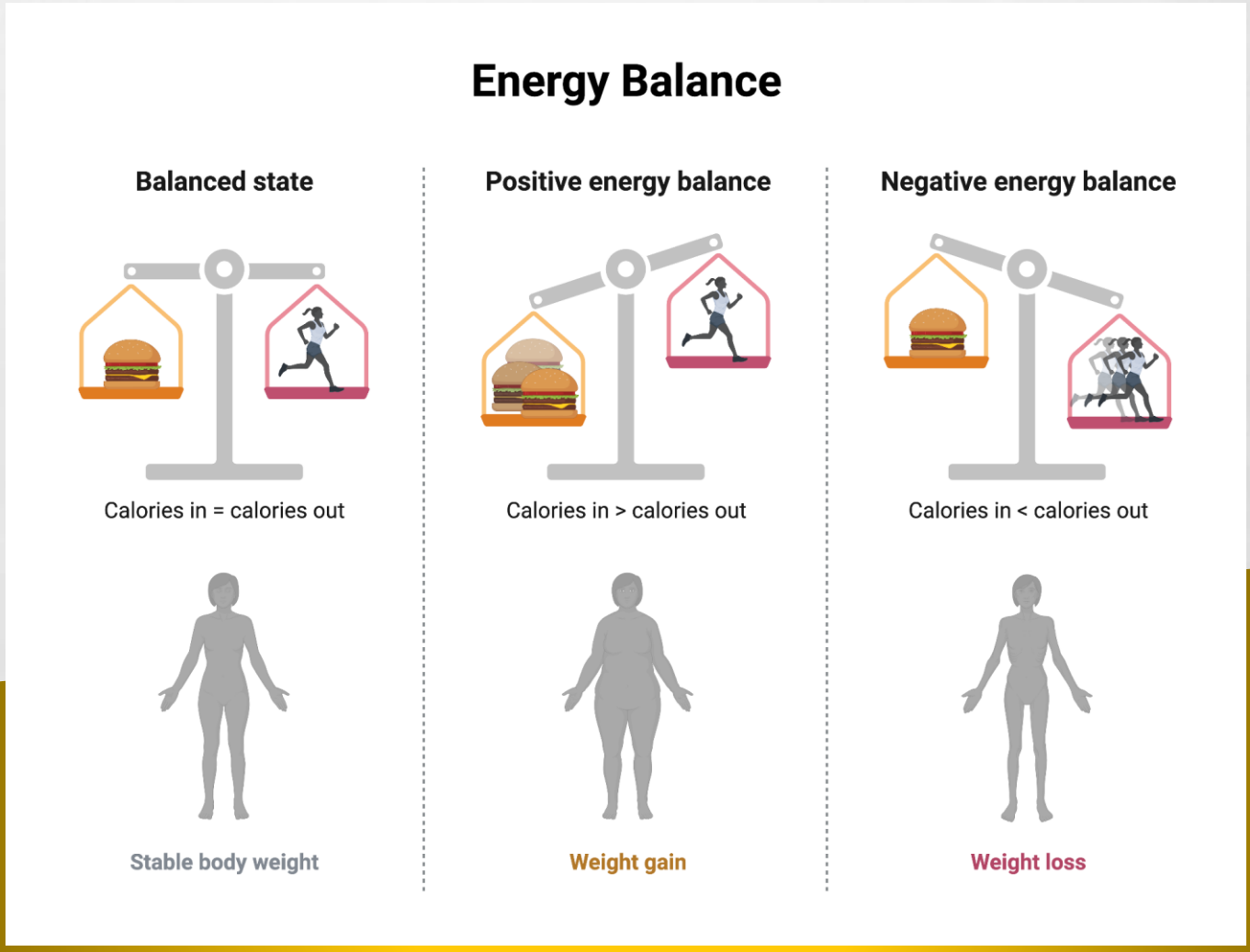
3.2 million
hectares of fertile land used to grow tobacco instead of food

2024.

- young people across the world are urging governments to shield them from predatory tobacco marketing tactics
- the industry targets youth for a lifetime of profits, creating a new wave of addiction
- children are using e-cigarettes at rates higher than adults and globally an estimated 37 million youth aged 13-15 years use tobacco

Alumni KeMo
Radionica *Energy balance*
20. 5. 2024., 16:00-18:00 h

EER? **TDEE?** **BMR?**
RMR? **PAR?** **PAL?**
DIT? **TEE?** **kcal?**



1.3. Radionice i gostovanja

ZA NAŠE ALUMNE ORGANIZIRAMO RADIONICE. U NASTAVKU MOŽETE PROČITATI OSNOVNE INFORMACIJE O RADIONICAMA ORŽANIMA DO LIPNJA 2024. GODINE.

Tijekom 2024. godine imali smo par gostovanja na Odjelu za kemiju. U sklopu gostovanja obišli smo laboratorije i isprobali odabrane kemijske pokuse. U sklopu Tjedna karijera kod nas je gostovao Institut za medicinska istraživanja i medicinu rada, a detalje možete pročitati u nastavku glasnika.

RADIONICE 2024.

SIJEČANJ 2024.

Posjet SLUŽBI ZA ZDRAVSTVENU EKOLOGIJU NASTAVNOG ZAVODA ZA JAVNO ZDRAVSTVO OSJEČKO-BARANJSKE ŽUPANIJE u siječnju 2024. godine. Članovi su se upoznali s radom i djelovanjem službe i zavoda te su imali priliku čuti i vidjeti kako funkcioniraju pojedini laboratoriji i čime se sve bave.

TRAVANJ 2024.

Posjet VODOVODU-OSIJEK d.o.o. u travnju 2024. godine. Članovi su posjetili kemijski i ekolaboratorij te su imali prilike čuti i vidjeti kako se provode procesi proizvodnje pitke vode.

SVIBANJ 2024.

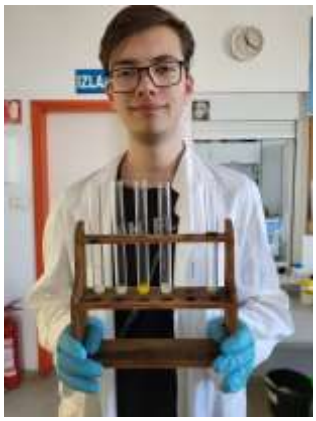
Posjet Saponiji Osijek d.d. u svibnju 2024. godine. Članovi su posjetili laboratorij kontrole kvalitete i laboratorij za kontrolu otpadnih voda.

GOSTOVANJA 2024.

TRAVANJ 2024.

III. Gimnazija Osijek

U travnju je Odjel posjetio učenik Benjamin Bojan Vojković koji je pod mentorstvom profesorice Kristine Kristek postao prvak u kemiji za II. razred srednje škole.



U periodu od 13. 4 do 4. 5. u Laboratoriju za opću i fizikalnu kemiju pripremao se za natjecanje. Pripremu su organizirali i pomagali Nikolina Filipovi, Stjepan Šarić i Elvira Kovač-Andrić.

SVIBANJ 2024.

OŠ Miroslava Krleže Čepin

U svibnju 2024. posjetile su nas prof. Zlata Matusina, nastavnica biologije i kemije u OŠ Miroslava Krleže Čepin, i njezina učenica Petra.

Organizirali smo upoznavanje s kemijskim laboratorijem, laboratorijskim posuđem i priborom, te osnovnim pravilima za siguran rad u kemijskom laboratoriju. Uz pomoć studenata, učenica je mogla složiti aparaturu i provesti nekoliko jednostavnijih kemijskih pokusa, kao što je destilacija vodene otopine modre galice, gel filtracija biomakromolekula, određivanje pH otopine pomoću pH metra, dobivanje plinova, ispitivanje svojstava plinova i sl.

Gostovanje su organizirale Ana Amić i Nikolina Filipović, a u njemu su sudjelovali studenti 3. godine prijediplomskog studija: Marija Kobaš, Iva Funarić, Katarina Repušić i Kristijan Švaganović.

TJEDAN KARIJERA 2024. GODINE

GOSTOVANJE INSTITUTA ZA MEDICINSKA ISTRAŽIVANJA I MEDICINU RADA

Povodom Tjedna karijera u organizaciji Alumni KeMo na Odjelu za kemiju gostovao je Institut za medicinska istraživanja i medicinu rada te je održano nekoliko predavanja:

Kratko promo predavanje o djelatnostima Instituta za medicinska istraživanja i medicinu rada, Zagreb

dr. sc. Antonija Sulimanec,

IMI Zagreb

Pesticidi u hrani - o metodama i rezultatima istraživanja ukupne prehrane

dr. sc. Antonija Sulimanec,

IMI Zagreb

Alzheimerova bolest: ima li nade?

dr. sc. Anita Bosak,

IMI Zagreb

Znanost o starenju - stari uzroci i novi izazovi 21. stoljeća

dr. sc. Marija Ljubojević,

IMI Zagreb

Slatki život sportaša

dr. sc. Ivana Vrhovac Madunić,

IMI Zagreb

Slušaj ovo - o buci i učincima na zdravlje!

Marija Kujundžić, mag. ing. sec.,

IMI Zagreb

ALUMNI KEMO PREDAVANJE 2024.: JE LI KEMIJA SAMO EKSPERIMENT?

Alumni KeMo predavanje 2024.

Je li kemija samo eksperiment?

Predavač: Ana Amić, doc. dr.sc.

Sažetak: U predavanju su analizirane definicije kemije kao znanosti i kemijskog pokusa, dana je podjela kemije na osnovne grane, te je postavljeno pitanje čime se kemija bavi danas. Publika je upoznata s novijim granam kemije, osobito računalnom kemijom – njezinim ulogama, prednostima, manama, značajem primjerice za medicinsku kemiju. Publika je upoznata s terminom „apokalipsa antibiotika“, superinfekcijama i načinom kako računalna kemija može pomoći u dizajnu novih lijekova.

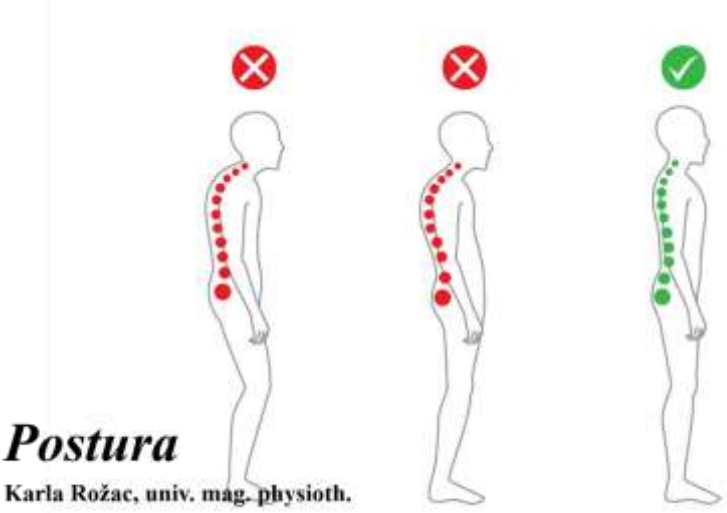
Datum i vrijeme održavanja: 19. 1. 2023. u 13:00 sati

Trajanje predavanja: 30 min + 10 min za pitanja i odgovore

Životopis predavača: Ana Amić zaposlena je kao docent na Odjelu za kemiju. Integrirani prijediplomski i diplomski studij završila je na Odjelu za biologiju, a doktorski studij na Sveučilištu u Osijeku.

Uvjeti: Predavanje je besplatno i namijenjeno studentima Odjela za kemiju. Održat će se na Odjelu za kemiju, Ulica cara Hadrijana 8/A.

ALUMNI KEMO PREDAVANJE I RADIONICA 2024.: POSTURA



Alumni KeMo predavanje i radionica 2024.

Postura

Predavač: Karla Rožac, univ. mag. physioth.

Sažetak: Pojam postura označava način držanja tijela. Glavni dijelovi tijela koji oblikuju posturu su glava, ramena, kralježnica, zdjelica, noge i stopala. Položaj jednog dijela tijela će utjecati na preostale dijelove ali i na cijelu posturu. Pravilna postura odnosno pravilo držanje tijela je ono u kojem je svaki dio tijela pod minimalnim stresom. Deformacijama posture smatra se što narušava pravilnu poziciju tijela u bilo kojem položaju. Tijekom rasta i razvoja kralježnica se kao i ostatak kostura modelira, tj. formira se njezina veličina i oblik. Posljedično, kralježnica može imati nepravilne krivine kako bi se funkcionalno mogla nesmetano razvijati. U takvim slučajevima će se kralježnica postupno stabilizirati i imati postojanu figuru u uspravnom položaju. U starijoj životnoj dobi zbog promjena na mišićnoj snazi ili promjena u tjelesnoj težini kralježnica postaje funkcionalno nestabilna što dovodi do razvoja degenerativnih promjena i pojave boli. Stoga je neupitna važnost dobre posture, a pogotovo danas zbog izrađenog sjedećeg stila života i izostanka kretanja.

Datum i vrijeme: 26. 3. 2024. u 13:00 h

Trajanje: 90 minuta + 10 minuta za pitanja i odgovore

Životopis predavača: Karla Rožac zaposlena je kao asistent na Fakultetu za dentalnu medicinu i zdravstvo Osijek. Završila je stručni studij fizioterapije na Odjelu za zdravstvene studije Veleučilišta „Lavoslav Ružička“ u Vukovaru 2018. godine obranivši završni rad naslova „*Neoperativni pristupi u tretmanu skolioza*“. 2020. godine završila je diplomski sveučilišni studij fizioterapije na Fakultetu za dentalnu medicinu i zdravstvo Osijek obranivši rad naslova „*Povezanost tjelesne aktivnosti i bolova u donjem dijelu leđa kod studenata Fakulteta za dentalnu medicinu i zdravstvo Osijek*“.

Uvjeti: Predavanje je besplatno i namijenjeno studentima Odjela za kemiju. Održat će se na Odjelu za kemiju, Ulica cara Hadrijana 8/A.

ALUMNI KEMO PREDAVANJE I OKRUGLI STOL 2024.: KAKO DO USPJEŠNOG OBRTA

Alumni KeMo predavanje i okrugli stol 2024.

Kako do uspješnog obrta

Predavač: Karolina Kolarić Biber

Sažetak: Obrt je samostalno i trajno obavljanje dopuštenih gospodarskih djelatnosti na tržištu, koje se mogu obavljati kao proizvodnja, promet ili usluge. Obrt obavljaju fizičke osobe, iznimno pravne osobe. Samostalnost u obavljanju obrta označava samostalno donošenje odluka u okvirima dozvoljenim zakonom i drugim propisima i neovisnost u poslovanju o odlukama drugih gospodarskih subjekata. Trajnost je vezana za namjeru obrtnika da se djelatnošću u obrtu bavi kontinuirano, a ne samo za jedan poslovni pothvat te na svojstvo trajnosti nemaju utjecaja ni sezonsko obavljanje djelatnosti niti privremene obustave poslovanja. U sklopu predavanja i okruglog stola biti će riječi o pokretanju obrta, problemima, komplikacijama i trikovima koji mogu olakšati pokretanje i vođenje obrta.

Datum i vrijeme: 26. 3. 2024. u 15:00 h

Trajanje: 90 minuta

Životopis predavača: Karla Kolarić Biber diplomirala je na Odjelu za kemiju (obranivši rad za nastavnički smjer i rad za istraživački smjer) te na Fakultetu agrobiotehničkih znanosti Sveučilišta u Osijeku (mast. ing. zaštite bilja). Vlasnica je obrta *K-lab*, obrta za poduku u Čakovcu.

Uvjeti: Predavanje je besplatno i namijenjeno studentima Odjela za kemiju. Održat će se na Odjelu za kemiju, Ulica cara Hadrijana 8/A.

ALUMNI KEMO PREDAVANJE I RADIONICA 2024.: UTJEČE LI PREHRANA NA MOJE MENTALNO ZDRAVLJE?!

Alumni KeMo predavanje i radionica 2024.

Utječe li prehrana na moje mentalno zdravlje?!

Predavač: Ivana Sović, mag. nutr.

Sažetak: Mozak je organ koji kontrolira sve procese u našem tijelu, radi 24 sata dnevno i zahtjeva stalnu energiju za svoj rad. No, je li važno što jedemo za naše mentalno zdravlje? Iako su čimbenici mentalnog zdravlja kompleksni, sve više znanstvenih istraživanja ukazuje na snažnu povezanost hrane i mentalnog zdravlja. Za pravilno funkcioniranje mozak zahtjeva određene hranjive tvari te je za nekoliko njih utvrđen utjecaj na kognitivne sposobnosti.

Datum i vrijeme: 22. 4. 2024. u 16:00 h

Trajanje: 120 minuta

Životopis predavača: Ivana Sović zaposlena je u Nutricionističkom savjetovalištu Nastavnog Zavoda za javno zdravstvo OBŽ. Diplomirala je 2016. godine na Prehrambeno-tehnološkom fakultetu Osijek, obranivši diplomski rad iz sveučilišnog diplomskog studija Znanost o hrani i nutricionizam čime je stekla titulu magistra inženjerka nutricionizma i znanosti o hrani (mag.nutr.).

Uvjeti: Predavanje je besplatno i namijenjeno studentima Odjela za kemiju. Održat će se na Odjelu za kemiju, Ulica cara Hadrijana 8/A.

ALUMNI KEMO PREDAVANJE I RADIONICA 2024.: RITAM ŽIVOTA KEMOS I FDMZOS ALUMNI MEETUP

Alumni KeMo predavanje i radionica 2024.

Ritam života – KemOs i FdmzOs Alumni MeetUp

Predavač: Željko Mudri, univ. mag. med. techn.

Sažetak: Predavanje i radionica koncipirani su kao mini edukacija o osnovnom održavanju života. Cilj je prenijeti znanja i tehnike neophodne za uspješnu reanimaciju te upoznati publiku s AVD uređajem. Standardne postupke oživljavanja čine: pritisci na sredinu prsnog koša žrtve i umjetno disanje, a automatski vanjski defibrilator (AVD) je jednostavan prijenosni uređaj koji spašava živote isporukom kontroliranog električnog šoka osobama sa srčanim zastojem. Uređaj analizira srčani ritam, daje upute spašavatelju (glasom, na hrvatskom jeziku) i omogućuju defibrilaciju. Na stranici Hrvatskog zavoda za hitnu medicine nalazi se mreža AVD uređaja u RH, koji se mogu naći na 658 lokacija (u Osijeku na 8 lokacija).

Datum i vrijeme: 20. 5. 2024. u 16:00 h

Trajanje: 90 minuta + 10 minuta za pitanja i odgovore

Životopis predavača: Željko Mudri zaposlen je kao asistent na Katedri za sestrinstvo i palijativnu medicinu Fakulteta za dentalnu medicinu i zdravstvo Osijek. Na istom fakultetu završio je preddiplomski studij 2018. godine, a 2020. godine završio je diplomski studij. Trenutno je student doktorskog studija sociologije na Hrvatskom katoličkom sveučilištu.

Uvjeti: Predavanje je besplatno i namijenjeno studentima Odjela za kemiju. Održat će se na Odjelu za kemiju, Ulica cara Hadrijana 8/A.

ALUMNI KEMO PREDAVANJE 2024.: IZAZOVI POUČAVANJA KEMIJE U OSNOVNOJ ŠKOLI

Alumni KeMo predavanje 2024.

Izazovi poučavanja kemije u osnovnoj školi

Predavač: Zorica Mohnacki, prof.

Sažetak: Većina studenata koji upišu znanstveni smjer misli da neće raditi u školi. Većina studenata koji upišu nastavnički smjer također vjeruje kako će naći posao u laboratoriju, na fakultetu institutu i sl. No, što je zapravo posao znanstvenika, a što učitelja? Koje pedagoške kompetencije i kakvo obrazovanje mora imati učitelj kemije, pa makar se radilo o studentu znanstvenog smjera? Kako je raditi u velikoj školi, a kako u maloj? Koja su tjedna zaduženja nastavnika, što znači A1 i A2, B1 i B2? Koji su poslovi i obaveze razrednika, što znači pojam „ostali poslovi“? Što podrazumijevaju koncepti poučavanja kemije? Predavanje „Izazovi poučavanja kemije“ nudi odgovore na ova pitanja i još brojna druga, te pojašnjava što zapravo znači biti učitelj kemije.

Datum i vrijeme: 27. 5. 2024. u 16:00 h

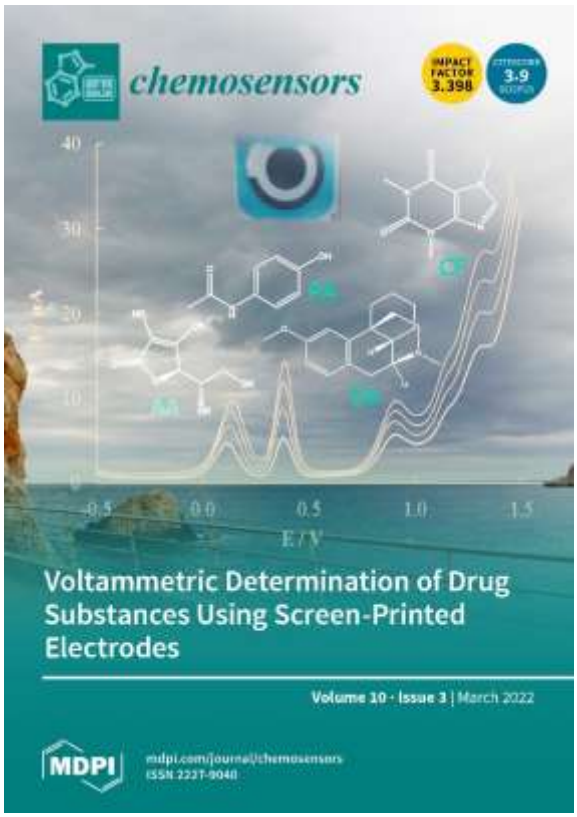
Trajanje: 45 minuta + 15 minuta za pitanja i odgovore

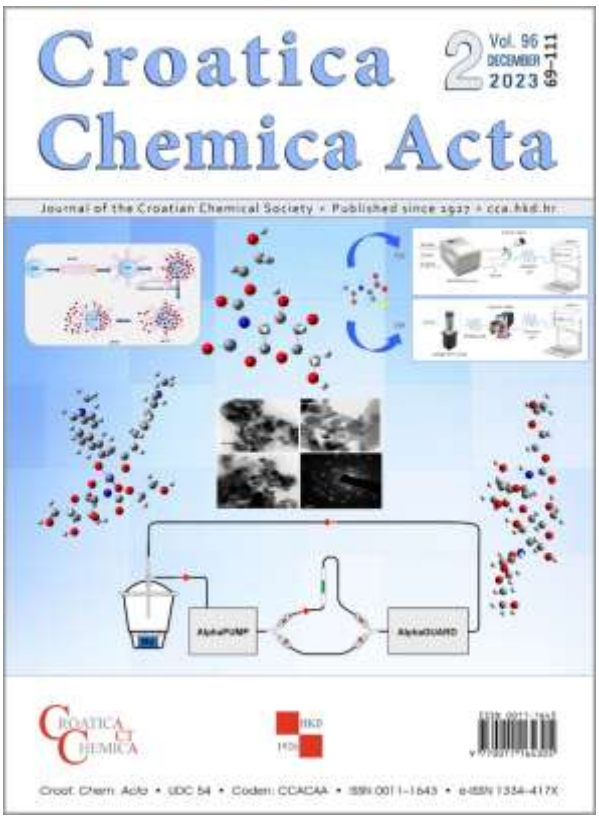
Životopis predavača: Zorica Mohnacki profesorica je kemije i biologije s dugogodišnjim iskustvom zaposlena u OŠ „Mladost“ u Osijeku.

Uvjeti: Predavanje je besplatno i namijenjeno članovima udruge i studentima Odjela za kemiju. Održat će se u OŠ „Mladost“, Sjenjak 7.

2. JOURNAL CLUB

U ovom broju Glasnika, u rubrici *Journal Club* predstavljamo dva časopisa – *Chemosensors* i *Croatica Chemica Acta*. Osim osnovnih informacija o odabranim časopisima, možete pročitati i znanstvene radove objavljene u njima. Možda će vas informacije u ovoj rubrici potaknuti na suradnju, na objavu radova u predstavljenim časopisima ili će vam dati smjernice i ideje za nove radove. U nastavku možete pročitati detalje o spomenutim časopisima i znanstvene radove naših alumna objavljene u suradnji sa studentima Odjela za kemiju.





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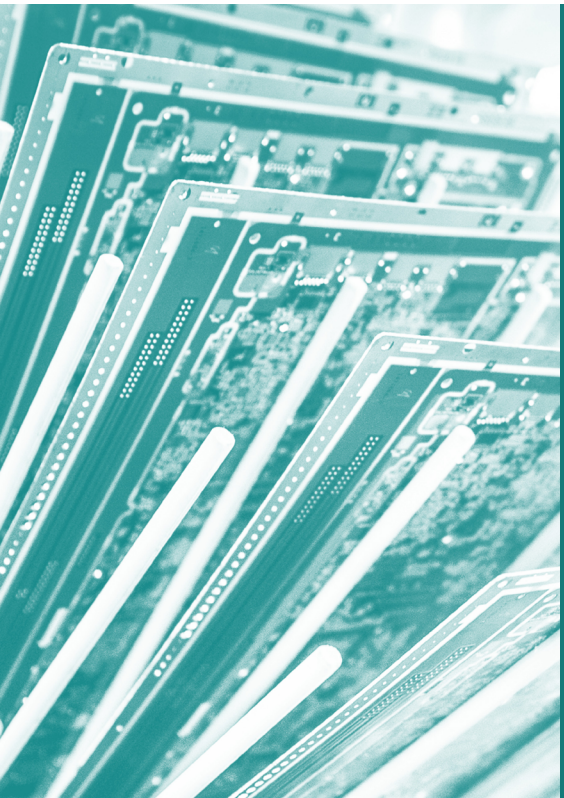

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Message from the Editor-in-Chief

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Aims

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Article

A Facile Synthetic Approach toward Obtaining N-Doped Carbon Quantum Dots from Citric Acid and Amino Acids, and Their Application in Selective Detection of Fe(III) Ions

Silvija Šafranko [1], Kristina Jandel [2], Monika Kovačević [2], Anamarija Stanković [2], Maja Dutour Sikirić [3], Šimun Mandić [4], Aleksandar Széchenyi [5], Ljubica Glavaš Obrovac [6], Marijana Leventić [6], Ivica Strelec [1], Krunoslav Aladić [1] and Stela Jokić [1,*]

[1] Faculty of Food Technology Osijek, University of Osijek, Franje Kuhača 18, 31000 Osijek, Croatia
[2] Department of Chemistry, University of Osijek, Ulica cara Hadrijana 8/A, 31000 Osijek, Croatia
[3] Division of Physical Chemistry, Ruđer Bošković Institute, 10000 Zagreb, Croatia
[4] Center of Excellence for Advanced Materials and Sensing Devices, Institute of Physics, Bijenička Cesta 46, 10000 Zagreb, Croatia
[5] Institute of Pharmaceutical Technology and Biopharmacy, Faculty of Pharmacy, University of Pécs, H-7624 Pécs, Hungary
[6] Department of Medical Chemistry, Biochemistry and Clinical Chemistry, University of Osijek, J. Huttlera 4, 31000 Osijek, Croatia
* Correspondence: sjokic@ptfos.hr; Tel.: +385-31-224-333

Abstract: This work reports the preparation of amino acid-functionalized CQDs from citric acid by facile hydrothermal synthesis. The prepared *N*-doped CQDs exhibited excellent optical, physical, and chemical properties, and the differences were observed among the six different amino acids used as nitrogen dopants (Leu, Trp, Lys, Arg, Ala, His). Compared to the blank sample (without the addition of amino acids), *N*-doped CQDs have shown significantly higher quantum yield, also demonstrating the potential in metal ion sensing. The highest quantum yield of 36.45%, with a peak excitation/emission of 340/406 nm, was achieved using citric acid and amino acid Leu (CQD@Leu), treated at temperature of 180 °C during 9 h. The prepared samples were investigated toward metal ion selectivity (Ca^{2+}, Cu^{2+}, Fe^{3+}, K^{+}, Hg^{2+}, Mg^{2+}, Al^{3+}, Mn^{2+}, and Na^{+}), and the CQD@Leu showed a selective and sensitive response upon the addition of Fe^{3+} ions. Therefore, CQD@Leu was selected for further investigation in Fe^{3+} detection in the model system and real well water samples. A developed model was described by a logistic function with a good coefficient of determination of $R^2 = 0.9982$, while the linear range was determined in the concentration range from 0.3 mol dm^{-3} to 30 mol dm^{-3}, with a determined limit of detection of LOD = 1.77 ± 0.01 mol dm^{-3} and limit of quantification of LOQ = 5.89 ± 0.04 mol dm^{-3}. Furthermore, the results of the in vitro cytotoxicity test (MTT) with normal and tumor cell lines (MRC-5, HeLa, NCI-H358, and CaCo-2) clearly demonstrate the excellent biocompatibility of CQD@Leu.

Keywords: carbon quantum dots; citric acid; amino acids; Fe^{3+} detection; biocompatibility

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1. Introduction

Photoluminescent carbon quantum dots (CQDs) have emerged as one of the novel classes of carbon nanomaterials, gradually gaining attention in various industrial and scientific fields in recent years. In general, CQDs are defined as zero-dimensional nanoparticles known for their small sizes, photostability, and outstanding physico-chemical and optical properties [1,2], which enables the widespread applicablity of luminescent nanoparticles in biosensing [3–6], chemical sensing [7–14], bioimaging [15,16], photocatalysis [17–20], and biomedicine [15,21–24]. The potential solubility of CQDs in water, their biocompatibility, photostability, high photoluminescence, and facile tunability could provide

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Precipitation of Calcium Oxalate Monohydrate Under Nearly the Same Initial Supersaturation

Nives Matijaković Mlinarić[1], Silvija Šafranko[2], Bernarda Vidas[3], Dominik Goman[3], Stela Jokić[2], Jasminka Kontrec[1], Branka Njegić Džakula[1], Ida Delač Marion[4], Martina Medvidović-Kosanović[3], Anamarija Stanković[3,*]

[1] Ruđer Bošković Institute, Bijenička cesta 54, 10000 Zagreb, Croatia
[2] Faculty of Food Technology Osijek, Josip Juraj Strossmayer University of Osijek, Franje Kuhača 18, 31000 Osijek, Croatia
[3] Department of Chemistry, Josip Juraj Strossmayer University of Osijek, Cara Hadrijana 8/A, 31000 Osijek, Croatia
[4] Center of Excellence for Advanced Materials and Sensing Devices, Institute of Physics, Bijenička cesta 46, 10000 Zagreb, Croatia
[*] Corresponding author's e-mail address: astankovic@kemija.unios.hr

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Abstract: Spontaneous precipitation of calcium oxalate monohydrate (COM) in additive-free systems with nearly the same initial supersaturation has been investigated. The influence of thermodynamic parameters such as: temperature (t = 25, 36.5 and 48 °C), calcium concentration range of 5 mmol dm^{-3} ≤ c(Ca^{2+}) ≤ 10 mmol dm^{-3} and pH (5.6, 6.5 and 7.5), on the potential changes in structure, morphology and crystal size of COM have been studied. The values of the initial parameters were varied in a wide range and included values relevant for mimicking the physiological conditions related to those in biological systems and kidney stone formation. The results contributed to the knowledge about the influence of the selected individual parameters as well as their interplay influence on *in vitro* precipitation of COM. The findings have indicated that COM was the only precipitated phase exhibiting predominant dendritic morphology. The effects on crystal size, structure and morphology are more pronounced at higher temperature, pH and calcium concentration. These results provide basis for future studies of overall mechanism of COM formation and the future studies of kidney stone prevention.

Keywords: calcium oxalate monohydrate, thermodynamic parameters, crystal size and morphology, supersaturation.

INTRODUCTION

BIOMINERALIZATION is a process by which a living organism manufactures minerals for different functional purposes, such as magnetic or gravitational sensing, mechanical stiffening of tissue and element storage. The biomineralization process involves the selective separation of inorganic and organic constituent units from the organism and their incorporation into functional superstructures.[1] As opposed to biomineralization defined as a process in which new and functional materials are created, there is also pathological biomineralization which is a process of unwanted biomineral formation.[2]

A phenomenon of pathological biomineralization could be defined as an undesirable crystallization process of slightly soluble inorganic salts in soft tissues. Urolithiasis is a specific form of pathological biomineralization, that through series of processes involving nucleation, crystal growth and aggregation, leads to the formation of stones in different parts of the urinary tract.[3] The formation of stones is a complex process influenced by multiple factors, but the exact mechanism is poorly understood. The formed crystals in patients usually differ in size, morphology, and/or crystal phase due to the differences in the concentration of calcium and oxalate ions, in the content of inhibitors and promoters among individuals[4,5], or could be affected by the pH of media. It is noteworthy to mention that the incidence of kidney stones is constantly growing, especially in industrialized countries because of modern and accelerated lifestyles.[6]

The calcium oxalates can precipitate in the form of three hydrate modifications, thermodynamically stable calcium oxalate monohydrate (COM), metastable calcium oxalate dihydrate (COD) and calcium oxalate trihydrate (COT). In terms of Ostwald's rule of stages and at temperature 37 °C, COT (K_{sp} = 7.19 × 10^{-9}) as the most

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telefon: 031/225-776
email: zz-ekologija-nutricionizam@zzjzosijek.hr

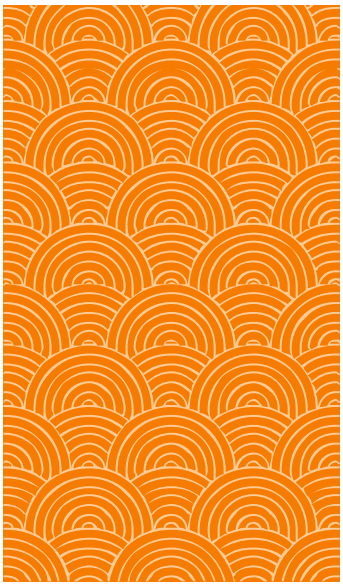
U sklopu rada *Savjetovališta za prevenciju prekomjerne tjelesne mase i debljine u djece školske dobi i mladih na području Osječko-baranjske županije* **provodimo Besplatne nutricionističke grupe podrške za mlade.** Dosadašnjim besplatnim nutricionističkim savjetovanjem studenata u NZJZ OBŽ uočena je otvorenost za usvajanjem promjena u prehrani i stilu života te osluškivanjem potreba mladih stvorena je ideja o Nutricionističkim grupama podrške za mlade.

Želja nam je informirati što više mladih osoba te ovim putem dijelimo informacije s Vašim čitateljima.

Studenti se mogu prijaviti na Besplatne nutricionističke grupe podrške za mlade skeniranjem QR koda (koji se nalazi na letku) ili online prijavom koju mogu pronaći na službenoj stranici NZJZ OBŽ https://www.zzjzosijek.hr/

Nutricionistička grupa podrške za mlade provest će se **4. travnja 2024.** godine u prostoru Nastavnog zavoda za javno zdravstvo Osječko-baranjske županije (Drinska 8, prvi kat) s početkom u **18:00 h**.

Stručna osoba Nutricionističkog savjetovališta potaknut će interakciju s grupom mladih u čijoj je srži prehrana i načini na koje zadire u različite segmente njihovog života. Istovremeno osim interakcije provodit će se jednostavna priprema hrane, "uključit" će se osjetila i naučiti:



👉 kako teoriju provesti u praksu kada je u pitanju cjeloživotni pristup pravilnim prehrambenim navikama;

👉 kako emociju ne skriti u 100 g čokolade ili prepunu zdjelu zelene salate;

👉 kako bitku s neželjenom tjelesnom masom pobijediti strpljivo i uz pomoć grupe;

👉 kako kreirati vlastite smjernice ka zdravlju;

👉 kako pogledati u ogledalu i reći "prihvaćam sebe"...

Osim prijave mladi imaju mogućnost predlaganja tema koje će se obraditi na budućim Nutricionističkim grupama podrške za mlade, aktivnosti u sklopu Savjetovališta za prevenciju prekomjerne tjelesne mase i debljine u djece školske dobi i mladih na području Osječko-baranjske županije.

AKTIVNOST U SKLOPU SAVJETOVALIŠTA ZA PREVENCIJU PREKOMJERNE TJELESNE MASE I DEBLJINE U DJECE ŠKOLSKE DOBI I MLADIH NA PODRUČJU OSJEČKO-BARANJSKE ŽUPANIJE

www.zzjzosijek.hr

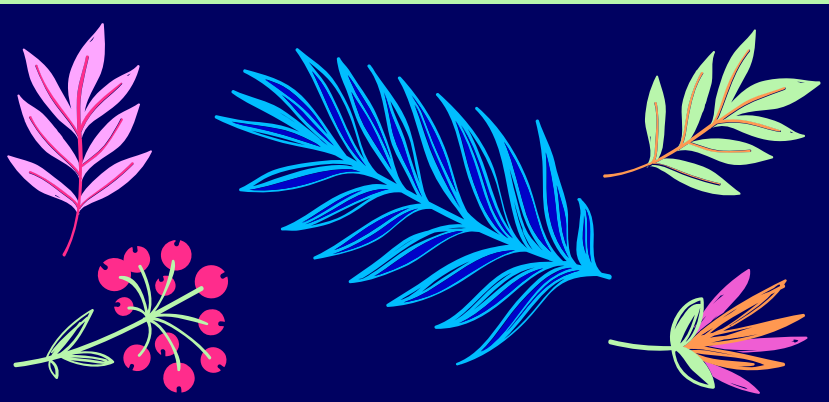
NASTAVNI ZAVOD ZA JAVNO ZDRAVSTVO OSJEČKO-BARANJSKE ŽUPANIJE

ZA KRAJ

POZIVAMO VAS DA SE UKLJUČITE U RAD UDRUGE I U KREIRANJE ALUMNI KEMO GLASNIKA.

INFORMACIJE O SVOJIM AKTIVNOSTIMA, KAO I PRIJEDLOGE ILI KOMENTARE, MOŽETE POSLATI NA ADRESU ELEKTRONIČKE POŠTE UDRUGE.

Alumni *KeMo* Glasnik 2024



• Oblikovali I uredili: •

• Ana Amić •

• Lipanj 2024. •

• Alumni KeMo •

Ulica cara Hadrijana 8/A
31000 Osijek
http://web.kemija.unios.hr/
index.php/o-alumni-kemo/