



Co-funded by the Prevention of and Fight
against Crime Programme of the European Union

NOVE PSIHOAKTIVNE SUBSTANCE (DEFINICIJE, DETEKCIJA, IDENTIFIKACIJA) – ALI SMO PRIPRAVLJENI?



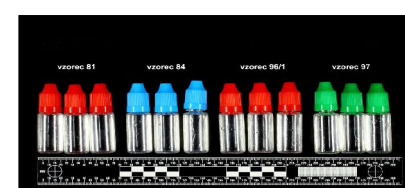
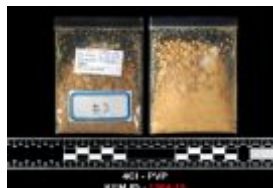
Dr. Sonja Klemenc

sonja.klemenc@policija.si

MNZ GPU, National Forensic Laboratory, Vodovodna 95, 1000 Ljubljana, Slovenia

KAJ SO NOVE PSIHOAKTIVNE SUBSTANCE (NPS)?

Definicija (po EMCDDA¹): NPS so nove narkotične ali psihotropne snovi v čisti obliki ali v pripravku, ki niso nadzorovane po konvencijah Združenih narodov ^{2,3,4}, pa bi kljub temu lahko predstavljale resno “grožnjo” za javno zdravje.



REFERENCE:

1. EMCDDA (European Monitoring Centre for Drugs and Drug Addiction) <http://www.emcdda.europa.eu/>
2. Konvencija združenih narodov o opojnih drogah, iz leta 1961 (Uradni list SFRJ št. 2/64);
3. Konvencija združenih narodov o psihotropnih substancah, iz leta 1971 (Uradni list SFRJ št. 40/73);
4. Konvencija združenih narodov zoper nezakonit promet mamil in psihotropnih snovi, iz leta 1988 (Uradni list SFRJ št. 14/90).

KDO IN NA KAKŠNI OSNOVI ZBIRA PODATKE O POJAVU NPS (V EU)

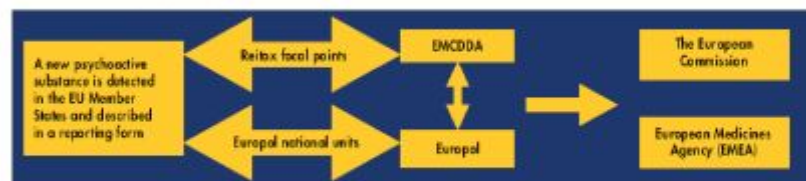
► Osnova za zbiranje in izmenjavo podatkov na nivoju članic EU

- SKLEP SVETA EU 2005/387/PNZ z dne 10. maja 2005 o izmenjavi podatkov, oceni tveganja in nadzoru nad novimi psihoaktivnimi snovmi

<http://eur-lex.europa.eu/legal-content/SL/TXT/HTML/?uri=CELEX:32005D0387&from=en>

Figure 1: Council Decision 2005/387/JHA: a three-step process

Information exchange/early warning



Risk assessment



Decision making



KDO IN NA KAKŠNI OSNOVI ZBIRA PODATKE O POJAVU NPS (V EU)

- ▶ Na nacionalnih nivojih se podatki zbirajo in procesirajo v okviru nacionalnih EWS mrež (Early Warning System); podatki se poročajo EMCDDA in lahko tudi EUROPOL



- ▶ EMCDDA podatke o vsaki poročani novi substanci (pripravku) implementira v bazo podatkov (EDND – za dostop je potrebno geslo), skupaj z EUROPOL pa objavljajo tudi periodična poročila

▶ <http://www.emcdda.europa.eu/publications>

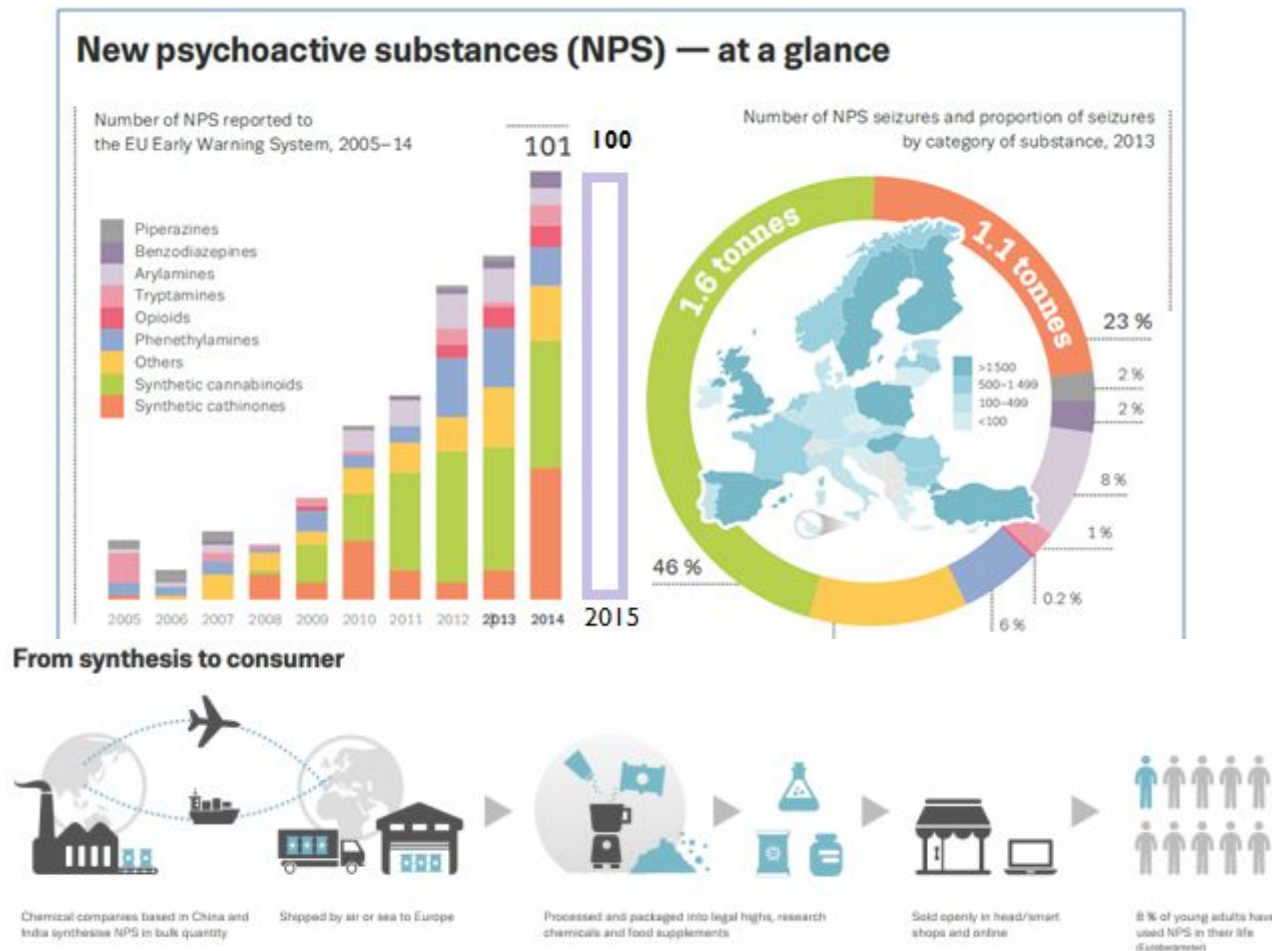
- ▶ Na svetovnem nivoju podatke zbira in procesira UNODC

<https://www.unodc.org/unodc/index.html?ref=menutop>



DIMENZIJE PROBLEMA

EMCDDA baza – 2005 do junija 2016: skupno 593 NPS



Legal highs

Marketed in bright and attractive packaging. Sold openly in head/smart shops and online. Aimed at recreational users.



Research chemicals

Sold under the guise of being used for scientific research. Aimed at 'psychonauts' who explore the effects of psychoactive substances. Sold openly online.



Food supplements

Sold under the guise of being food or dietary supplements. Aimed at people wanting to enhance their body and mind. Sold openly in fitness shops and online.



Designer drugs

Passed off as drugs such as MDMA and heroin. Produced in clandestine labs by organised crime. Sold on illicit drug market by drug dealers.



Medicines

Medicines that are diverted from patients or illegally imported into Europe. Sold on illicit drug market by drug dealers.

Vir: EMCDDA New psychoactive substances in Europe. An update from the EU Early Warning System (March 2015), (<http://www.emcdda.europa.eu/publications/2015/new-psychoactive-substances>) in EDND baza

PROIZVODNJA NPS – ZAKAJ?

- ▶ Namen sinteze novih substanc je preoblikovati kemijsko strukturo tako, da substanca ne bo regulirana, hkrati pa bo imela pričakovane psihoaktivne učinke.

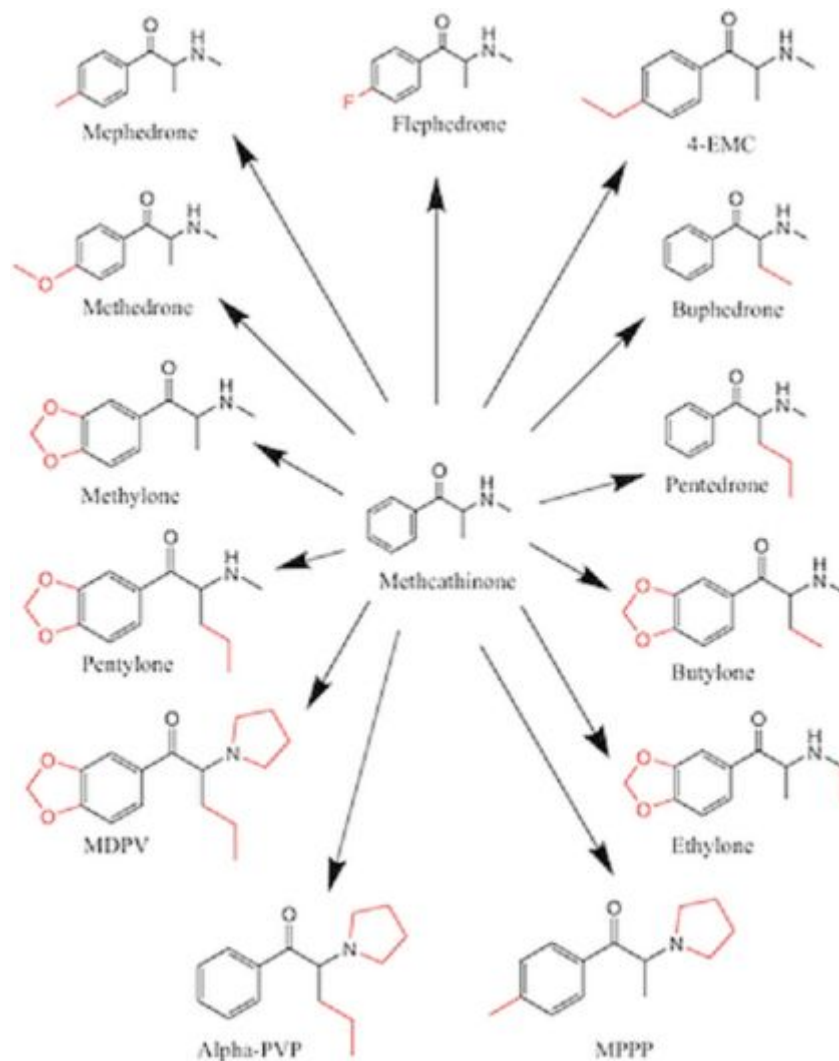


Prepovedan sadež

Moj je drugačen!

Dokler nova snov ni identificirana in zakonsko regulirana je legalna!

NPS po kemijsko “primerček”



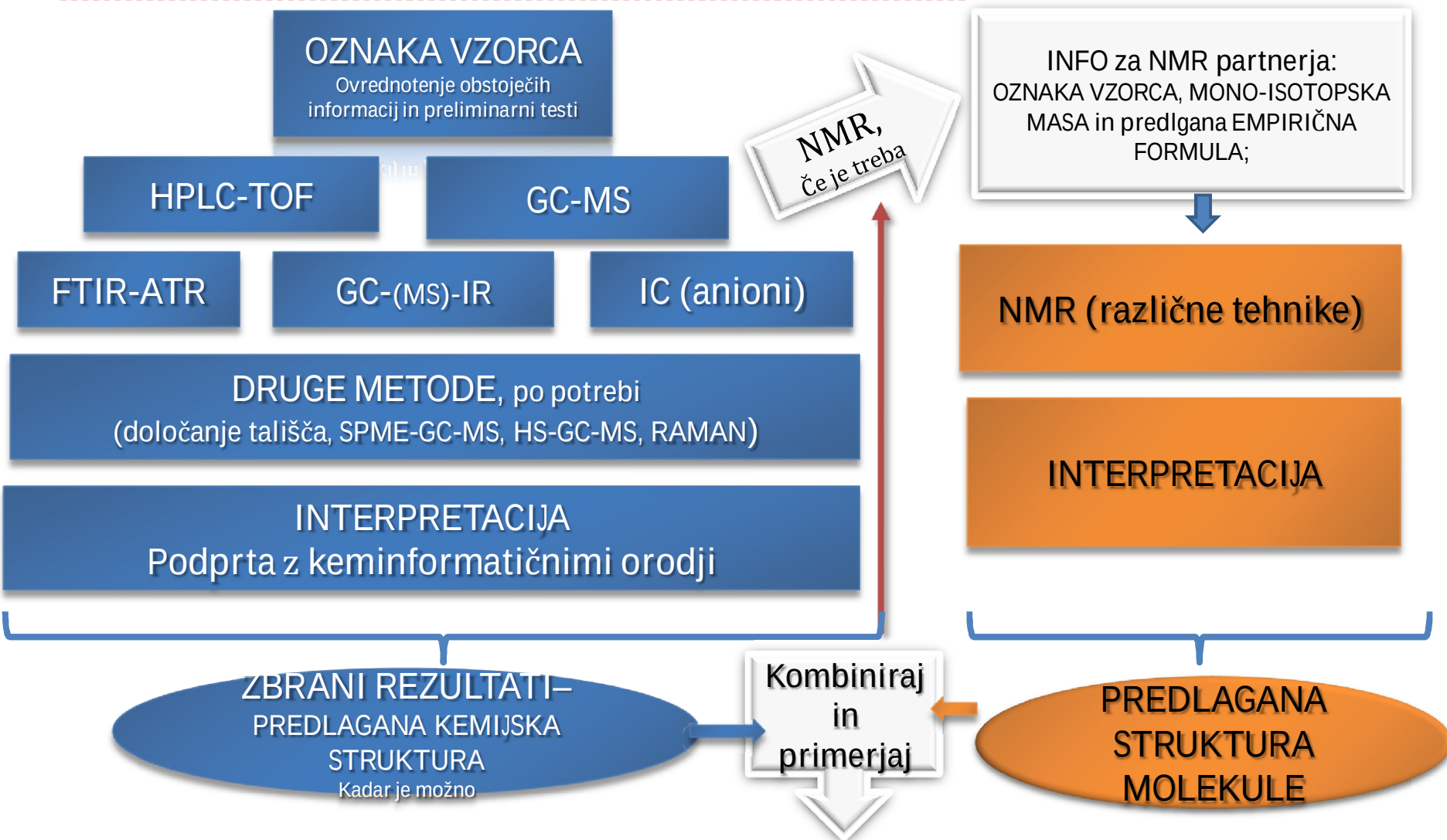
Detekcija in identifikacija NPS – KEMIJSKI IZZIV!

DEJSTVA:

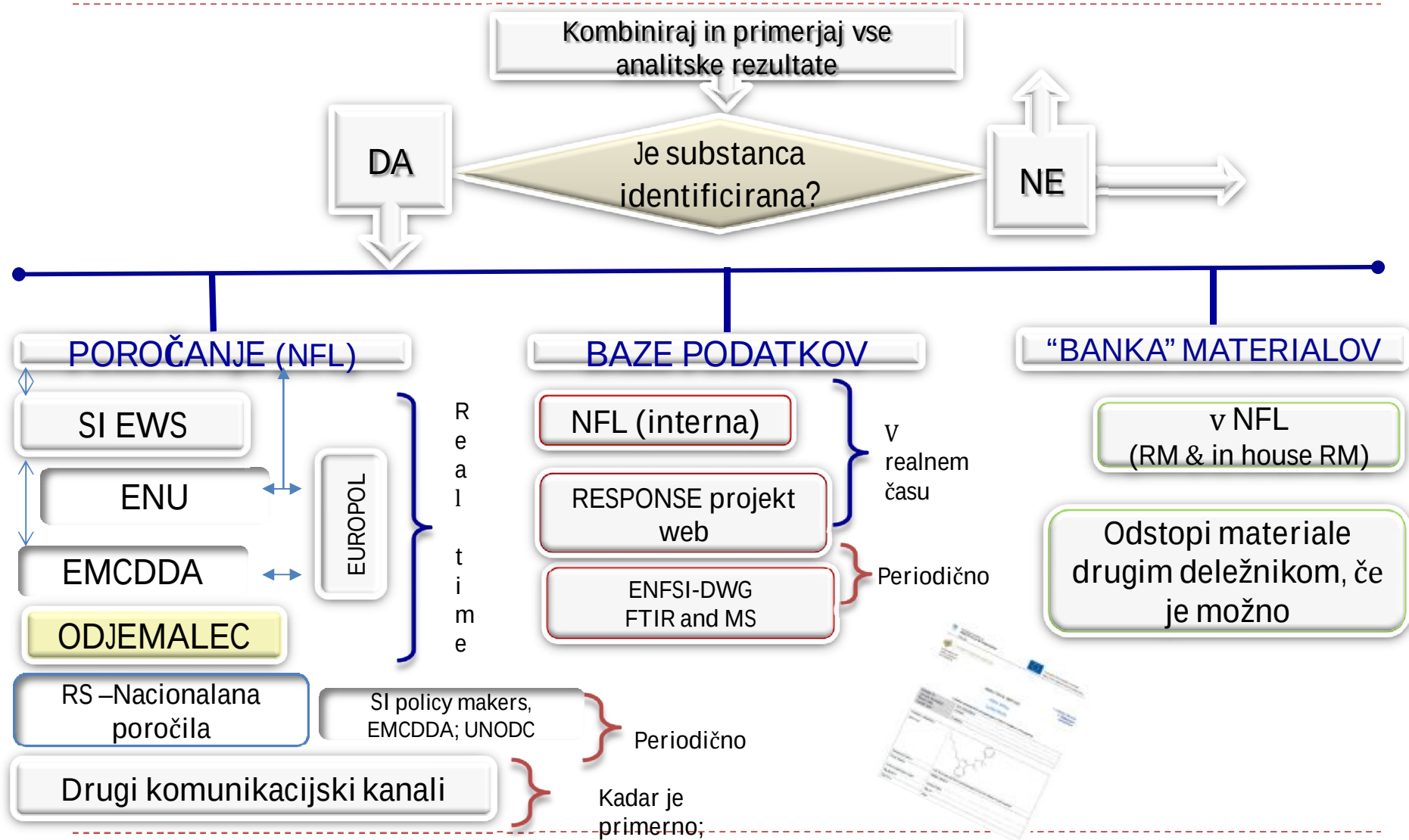
- ❑ NPS večinoma prvi **detektiramo (zaznamo)** v forenzičnih in carinskih laboratorijih.
- ❑ **Identificirati** NPS pomeni, določiti kemijsko strukturo spojine, ji dati kemijsko ime in formulo
- ❑ Za identifikacijo nove spojine je potreben referenčni material (**ki v realnem času ni na vojo**) ali pa je potrebna draga in sofisticirana oprema (NMR in HRMS).
- ❑ Večina laboratorijev take opreme nima in so pri identifikaciji NPS odvisni od
 - ❑ **razpoložljivih elektronskih baze** – podatkov z **MS in/ali FTIR spektri v (te baze pa se v realnem času ne posodablajo)**
 - ❑ **od obstoječih kanalov za izmenjavo informacij in/ali odprtih – javno dostopnih virov podatkov (spektrov)**



KEMIJSKA KARAKTERIZACIJA- STRATEGIJA



KEMIJSKA KARAKTERIZACIJA & POROČANJE

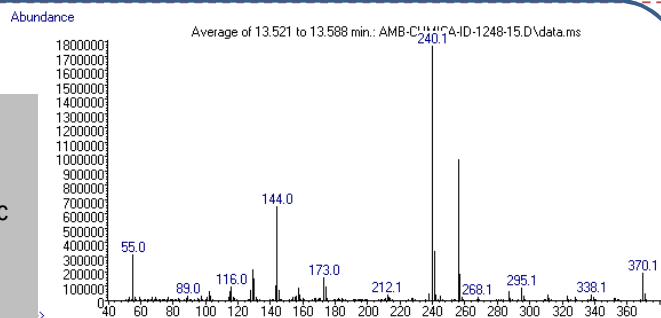


Kemijaska karakterizacija v praksi



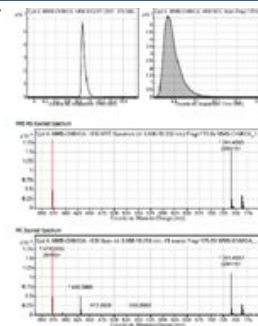
GC-MS

Single chromatographic peak was observed (No hits)

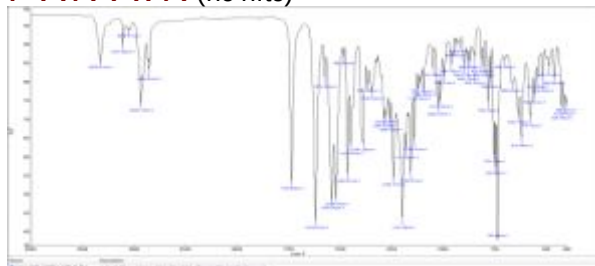


HPLC-TOF

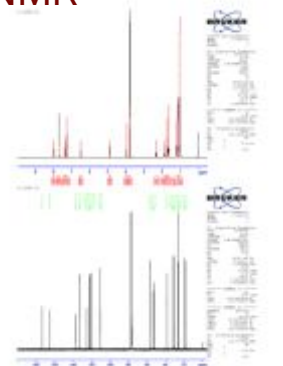
Mass: 370.493
Exact mass: 370.2256
Formula: C₂₂H₃₀N₂O₃



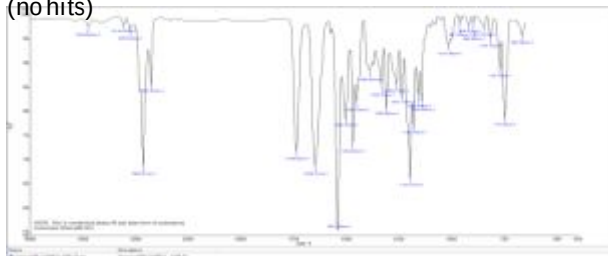
FTIR-ATR (no hits)



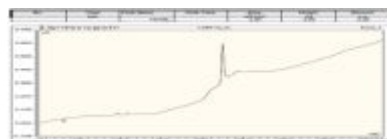
NMR



GC-(MS)-IR-condensed phase (no hits)



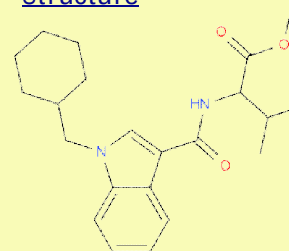
IC -anions



NOVASUBSTANCA JE IDENTIFICIRANA ☺

Formula: C₂₂H₃₀N₂O₃; M_w : 370.493 g/mol

Structure



Chemical name:

methyl 2-(1-(cyclohexylmethyl)-1H-indole-3-carbonylamino)-3-methylbutanoate

Nick name: AMB-CHMICA

StdInChIKey: [ROWZIXRLVUOMCJ-UHFFFAOYSA-N](#)

Nove psihoaktivne substance – novi izzivi

Ali smo pripravljeni



KEMIKI SMO! Kaj pa ostali?

Zahvala



Del aktivnosti, ki jih na področju novih psihoaktivni substanc izvaja NFL je sofinanciran iz sredstev programa Preprečevanje in boj proti kriminalu Evropske unije (projekt »RESPONSE« - AG JUST/2013/ISEC/DRUGS/AG/4000006413). Vsebina te prezentacije je izključna odgovornost avtorja in ne odraža stališč EU komisije.

Partnerji in pridruženi partnerji projekta

[University of Ljubljana, Faculty of Chemistry and Chemical Technology \(FKKT\), Slovenia](#)

[Ministry of the Interior, National Forensic Institute \(INPS\), France](#)

[Hungarian Institute for Forensic Sciences \(HIFS\), Hungary](#)

[National Institute of Criminalistics and Criminology \(INCC\), Belgium](#)

[Institut for Forensic Medicine, Aarhus \(UNI Aarhus\), Denmark](#)

[University of Copenhagen, Faculty of Health \(UNI CPHG\), Department of Forensic Medicine, Denmark](#)

[Ministry of the Interior of the Republic of Croatia, Forensic Science Centre \(MUP RH\), Croatia](#)

[European Monitoring Centre for Drugs and Drug Addiction \(EMCDDA\), Portugal](#)

[Forensic Science Lab, Dublin \(FSL\), R Ireland](#)

[Forensic Science and Toxicology Lab, State General Laboratory, Ministry of Health \(FSTL\), Cyprus](#)

[Judiciary Police, Scientific Police Laboratory \(SPL\), Portugal](#)

[National Investigation Service Norway \(KRIPOS\), Norway](#)

[National Institute for Public Health \(NIJZ\), Slovenija](#)

[University of Ljubljana, Faculty of Medicine, Department of Toxicology \(UNI LJ FM DT\), Slovenia](#)

[Association DrogArt \(DrogArt\), Slovenia](#)

Spletna stran:

<http://www.policija.si/eng/index.php/generalpolicedirectorate/1669-nfl-page-response>