

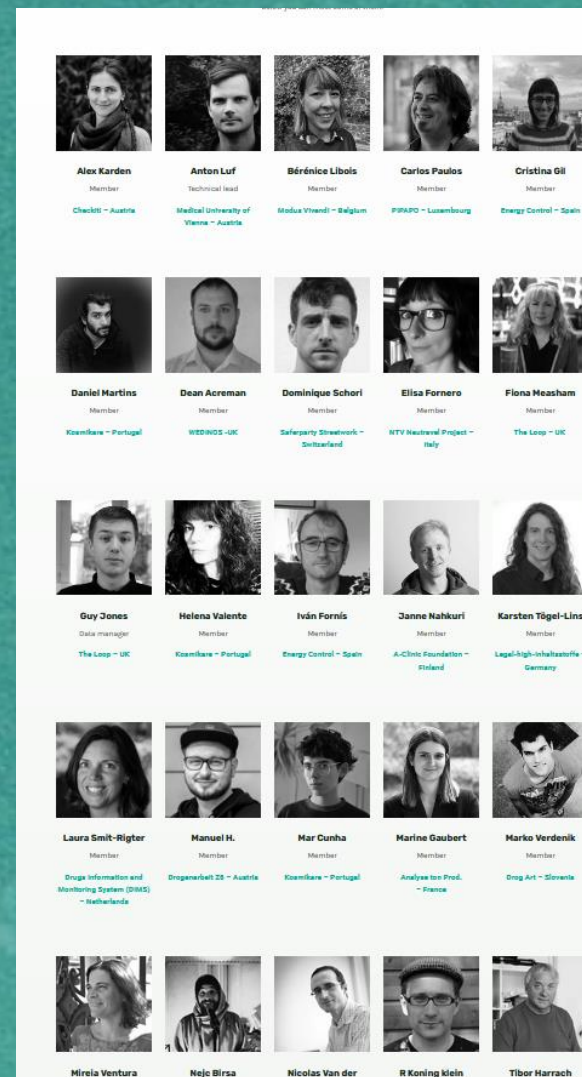
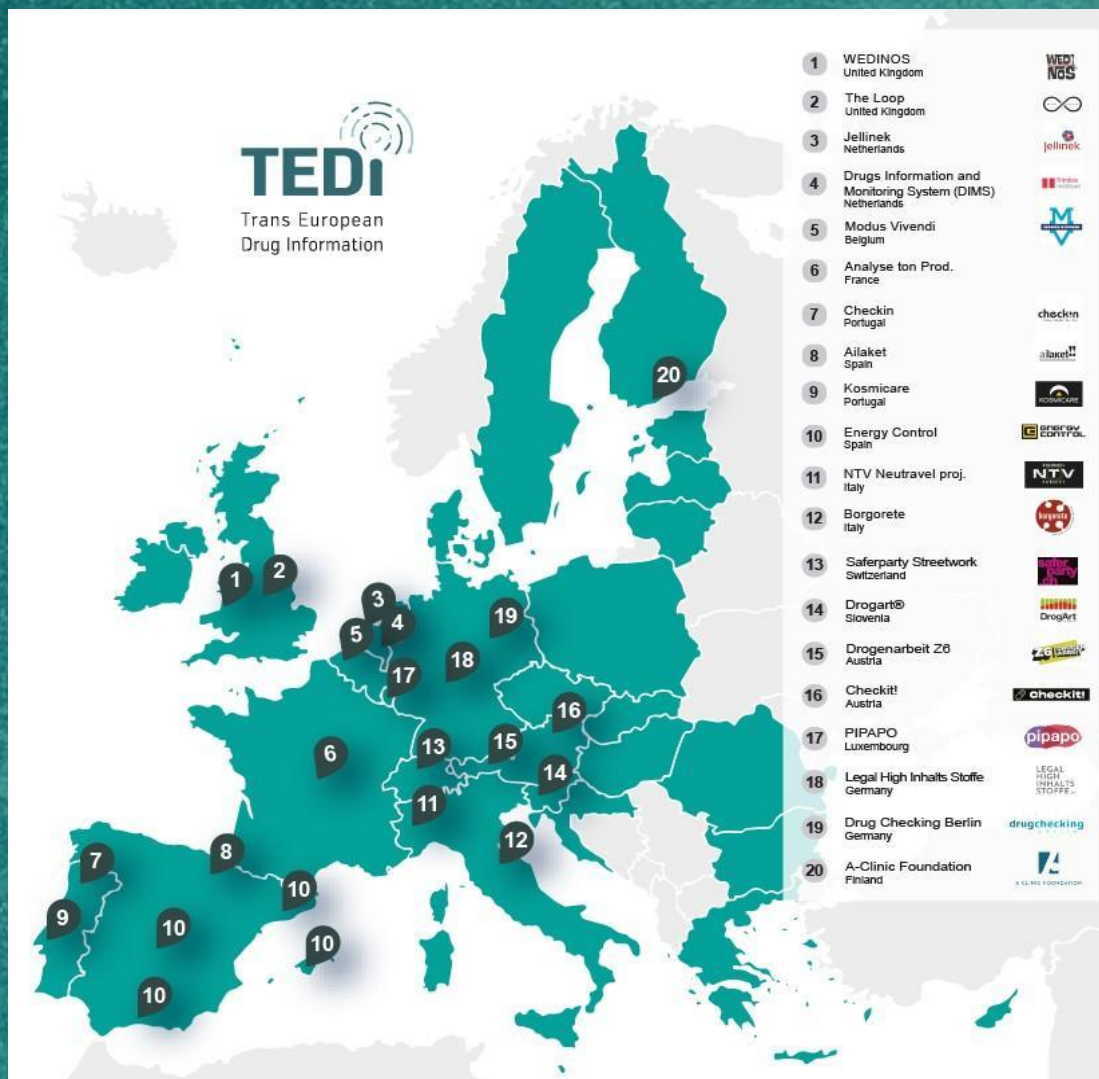
Trends on the drug market

An European perspective from the TEDI network

Mireia Ventura PhD.

THE TEDI NETWORK

European Network of 20 drug checking services from 18 countries.



TEDI AS A MONITORING TOOL



Research article

Drug Testing
and Analysis

Received: 14 October 2015

Revised: 30 December 2015

Accepted: 31 December 2015

Published online in Wiley Online Library

(www.drugtestinganalysis.com) DOI 10.1002/dta.1954

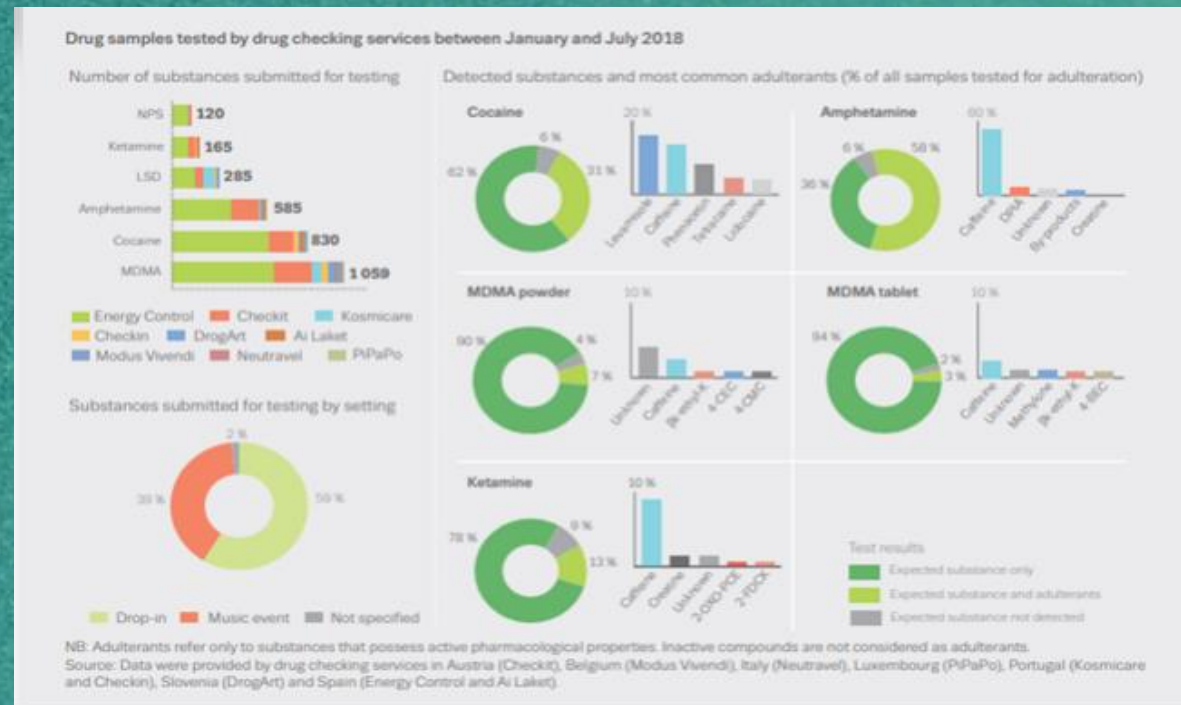
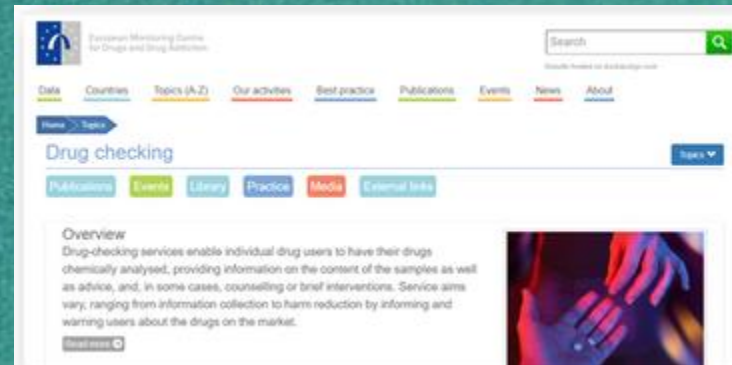
Drug testing in Europe: monitoring results of the Trans European Drug Information (TEDI) project

Tibor M. Brunt,^{a*} Constanze Nagy,^b Alexander Bücheli,^c Daniel Martins,^d Miren Ugarte,^e Cécile Beduwe^f and Mireia Ventura Vilamala^g

Drug testing is a harm reduction strategy that has been adopted by certain countries in Europe. Drug users are able to hand in their drugs voluntarily for chemical analysis of composition and dose. Drug users will be alerted about dangerous test results by the drug testing systems directly and through warning campaigns. An international collaborative effort was launched to combine data of drug testing systems, called the Trans European Drug Information (TEDI) project. Drug testing systems of Spain, Switzerland, Belgium, Austria, Portugal, and the Netherlands participated in this project. This study presents results of some of the main illicit drugs encountered: cocaine, ecstasy and amphetamine and also comments on new psychoactive substances (NPS) detected between 2008 and 2013. A total of 45 859 different drug samples were analyzed by TEDI. The drug markets of the distinct European areas showed similarities, but also some interesting differences. For instance, purity of cocaine and amphetamine powders was generally low in Austria, whilst high in Spain and the Netherlands. And the market for ecstasy showed a contrast: whereas in the Netherlands and Switzerland there was predominantly a market for ecstasy tablets, in Portugal and Spain MDMA (3,4-methylenedioxymethamphetamine) crystals were much more prevalent. Also, some NPS appearing in ecstasy seemed more specific for one country than another. In general, prevalence of NPS clearly increased between 2008 and 2013. Drug testing can be used to generate a global picture of drug markets and provides information about the pharmacological contents of drugs for the population at risk. Copyright © 2016 John Wiley & Sons, Ltd.

Keywords: new psychoactive substances; drug testing; amphetamine; cocaine; ecstasy; purity; adulterants

THE TEDI NETWORK



TEDI is part of the monitoring system of the EMCDDA contributing to the EDR since 2018

DETECTION OF MDMB-4en-PINACA BY TEDI MEMBERS



International Journal of Drug Policy 100 (2022) 103493

Contents lists available at ScienceDirect

International Journal of Drug Policy

journal homepage: www.elsevier.com/locate/drugpo

Short Report

Cannabis adulterated with the synthetic cannabinoid receptor agonist MDMB-4en-PINACA and the role of European drug checking services

Pieter E. Oomen^a, Dominique Schon^{b,c}, Karsten Tögel-Lins^{c,d}, Dean Acreman^{c,e}, Sevag Chenorhokian^{c,f,g}, Anton Luf^{c,h,k}, Alexandra Karden^{c,i}, Carlos Paulos^{c,j}, Elisa Fomero^{c,k}, Enrico Gerace^l, Raoul P.J. Koning^{c,m}, Liliana Galindo^{c,n}, Laura A. Smit-Rigter^{a,c}, Fiona Measham^{c,o}, Mireia Ventura^{c,p,*}

^a Drugs Information and Monitoring System (DIMS), Drug Monitoring and Policy, Tribunes Institute, De Cozackade 45, 3521 VS, Utrecht, the Netherlands
^b SafeParty Streetwork (Schadensminderung illegale Substanzen), Wasserwerkstrasse 17, 8006 Zürich, Switzerland
^c Trans European Drug Information (TEDI), NEWNet, Paris, France
^d Badis, Heidelberger Landstrasse 145, Frankfurt am Main, Germany
^e Substance Misuse Programme, Public Health Wales, 2 Capital Quarter, Tyndall Street, CF10 4BZ, Cardiff, Wales, UK
^f Association SIDA Paroles, 10 rue Victor Hugo, 92700 Colombes, France
^g Association OPPEHA-Charonne, 3 Quai d'Assolant, 75013 Paris, France
^h Checkit laboratory, Clinical Department of Laboratory Medicine, Medical University of Vienna, Währinger Gürtel 18-20, 1090, Vienna, Austria
ⁱ Checkit, Vienna Addiction Services, Gumpendorfer Straße 8, 1060, Vienna, Austria
^j Amotom s.r.l. / PIPAPO71-73 rue Adolphe Fischer L-1520 Luxembourg, Luxembourg
^k Cooperativa Sociale Alice Onlus, Neuvicel, Corso Allamano 141, 10095 Grugliasco (TO), Italy
^l Centro Regionale Antidoping e di Toxicologia "A. Berninaria", Regione Gonzole 10/1, 10043 Orbassano (TO), Italy
^m Jellinek (Prevention), Jacob Obrechtstraat 92, 1071 KR, Amsterdam, the Netherlands
ⁿ Department of Psychiatry, University of Cambridge, Cambridgehire and Peterborough NHS Foundation Trust, Cambridge, UK
^o Department of Sociology, Social Policy & Criminology, University of Liverpool, Liverpool, L69 7ZR, United Kingdom
^p Energy Control, Asociación Bimaterial Desarrollo, Quenedo 2, Barcelona, Spain

ARTICLE INFO

Keywords:
SCRAs
MDMB-4en-PINACA
Cannabis
Adulteration
Drug checking

ABSTRACT

Background: European drug checking services exchange information on drug trends within the Trans European Drug Information (TEDI) network, allowing monitoring and coordination of responses. Starting in Spring 2020, several services detected the synthetic cannabinoid receptor agonist MDMB-4en-PINACA in adulterated low-THC cannabis products.

Method: Cannabis products suspected of adulteration were analyzed for the presence of MDMB-4en-PINACA by 9 services in 8 countries within the TEDI network. If available, phytocannabinoid analysis was also performed.

Results: 1142 samples sold as cannabis in herbal, resin and e-liquid form were analyzed, of which 270 were found to contain MDMB-4en-PINACA. All cannabis samples contained low THC (<1%), except the e-liquids which contained no phytocannabinoids. Three serious health incidents requiring hospitalization after use of an adulterated cannabis sample were reported.

RESULTS

By April 2020, 9 drug checking services in 8 countries identified this trend.

1142 samples (herbal, resin cannabis and e-liquids) were analyzed.

270 were found to contain MDMB-4en-PINACA.

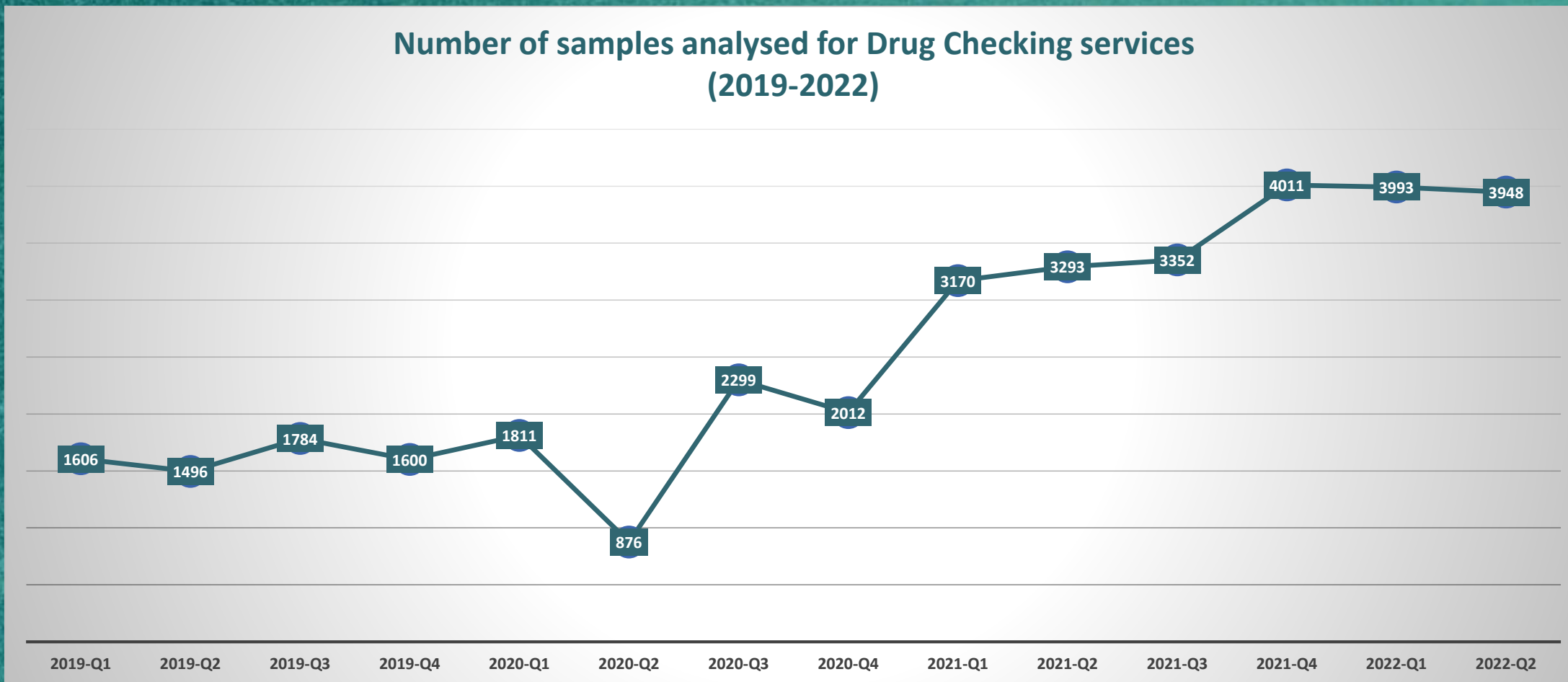
All cannabis samples contained low THC.

One serious health incident requiring hospitalization after use of an adulterated cannabis sample was reported.

Cannabis consumers are not a regular drug checking service target group.

DATA OF DRUG CHECKING SERVICES

Number of samples analysed for Drug Checking services
(2019-2022)



The biggest impact for drug checking services was during March 2020 until June 2020. After the pandemic most of services are collecting more samples

SAMPLES COLLECTED (2020-2022)

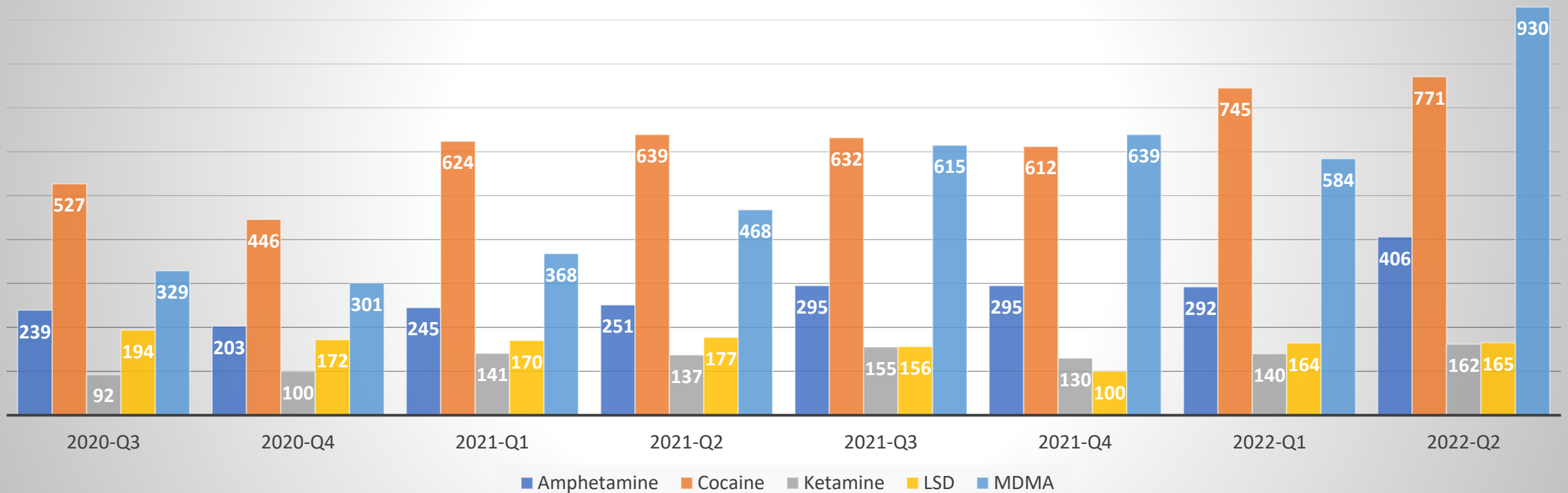


ORGANISATION	2020-Q3	2020-Q4	2021-Q1	2021-Q2	2021-Q3	2021-Q4	2022-Q1	2022-Q2	TOTAL	%
A-Clinic Foundation (FL)								28	28	0.11
Ai Laket (SP)	6								6	0.02
Checkit (AU)	231	215	318	348	365	320	343	487	2627	10.07
DIZ Zurich (SW)	523	451	567	473	590	445	600	622	4271	16.38
DrogArt (SL)	215	152	204	201	194	246	194	243	1649	6.32
Energy Control (SP)	431	463	591	635	557	687	972	1023	5359	20.54
Kosmicare (PT)	47	57	34	29			91	125	383	1.47
Legal-High-Inhaltsstoffe (DE)		50	290	219	114	132	44		849	3.26
Modus Vivendi (BL)	37	29	40	51	10	14			181	0.69
NEUTRAVEL (IT)		19	31	31	61	27	28	41	238	0.91
PiPaPo (LUX)	42	39	26	12	56	24	8	47	254	0.97
SottoKassa (IT)	1	6	1	2		12	4	7	33	0.13
WEDINOS (UK)	666	452	965	1213	1288	2006	1606	1246	9442	36.21
Z6 (AU)	100	79	103	79	117	98	103	79	758	2.91
TOTAL	2299	2012	3170	3293	3352	4011	3993	3948	26078	100

26.078 samples from 11 countries

SAMPLES COLLECTED (2020-2022)

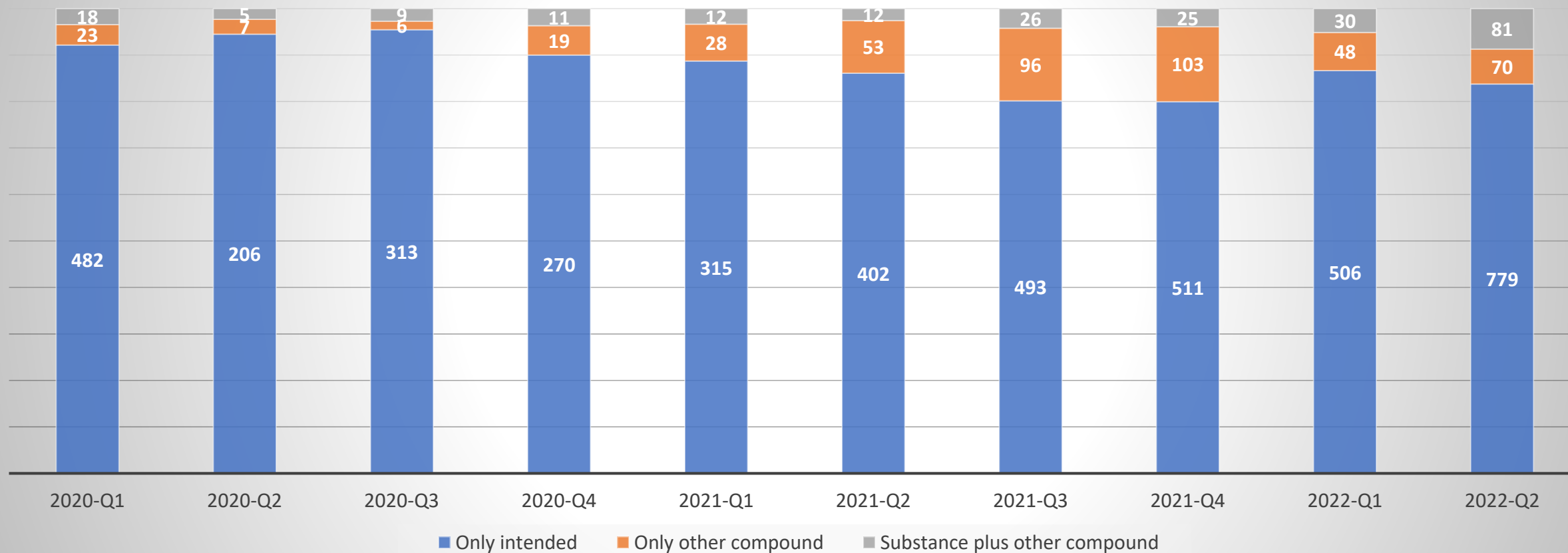
Type of substances analysed (2020-2022)



Gradual increase of MDMA with the reopening of nightlife

MDMA's ADULTERATION (2020-2022)

Adulteration MDMA samples

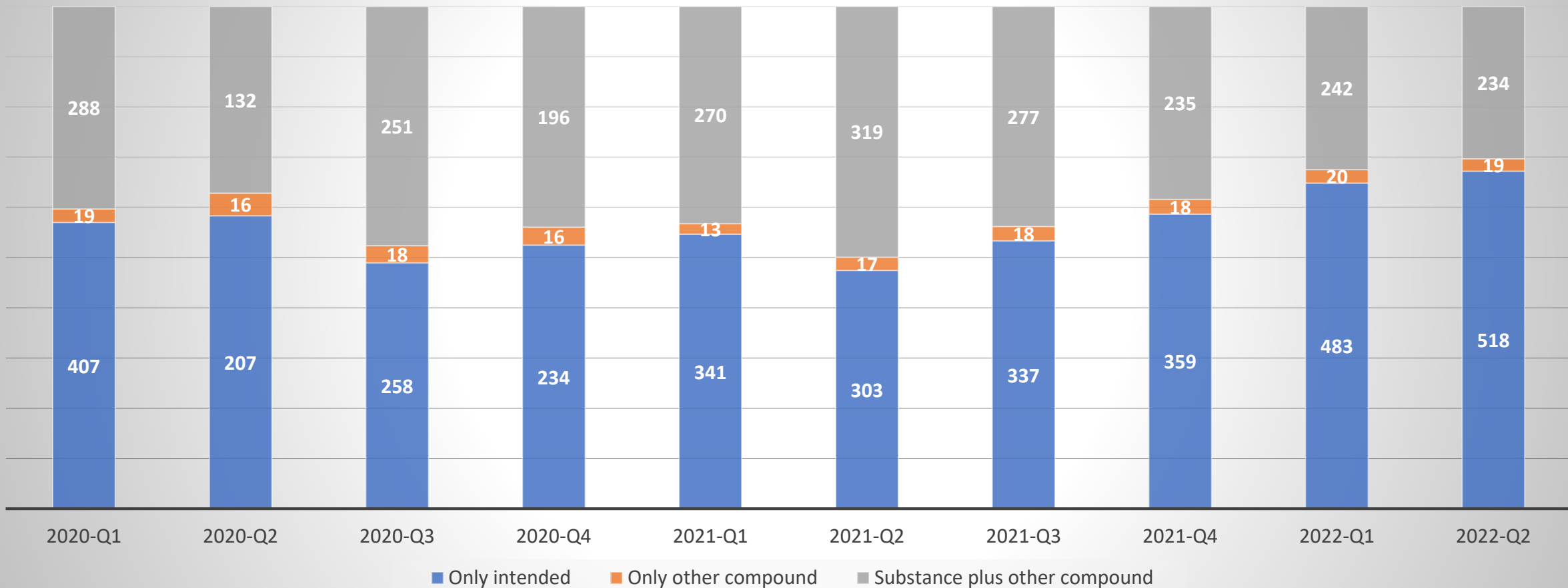


Adulteration of MDMA is increasing.

Mixes in MDMA pills (Amphetamine and caffeine). Substitution by cathinones

COCAINE'S ADULTERATION (2020-2022)

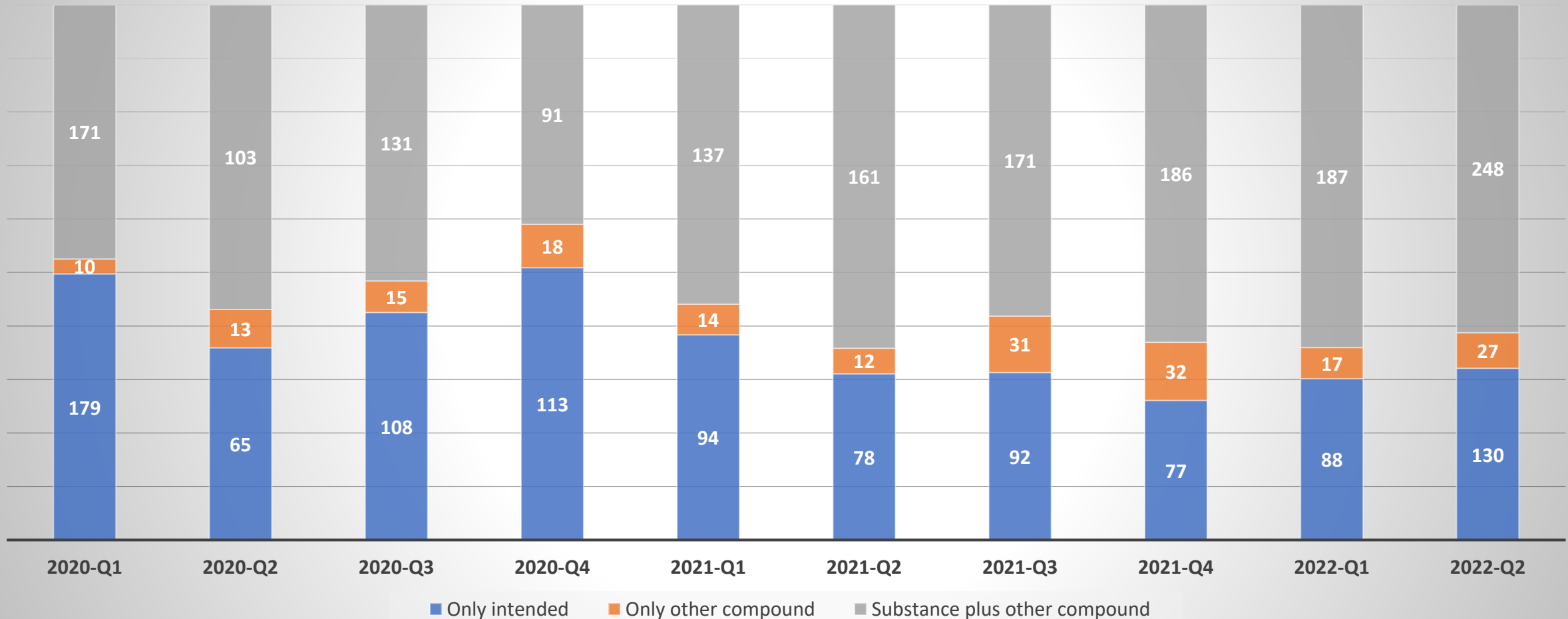
Adulteration Cocaine samples



Adulteration of cocaine is slightly decreasing in the last year

AMPHETAMINE'S ADULTERATION (2020-2022)

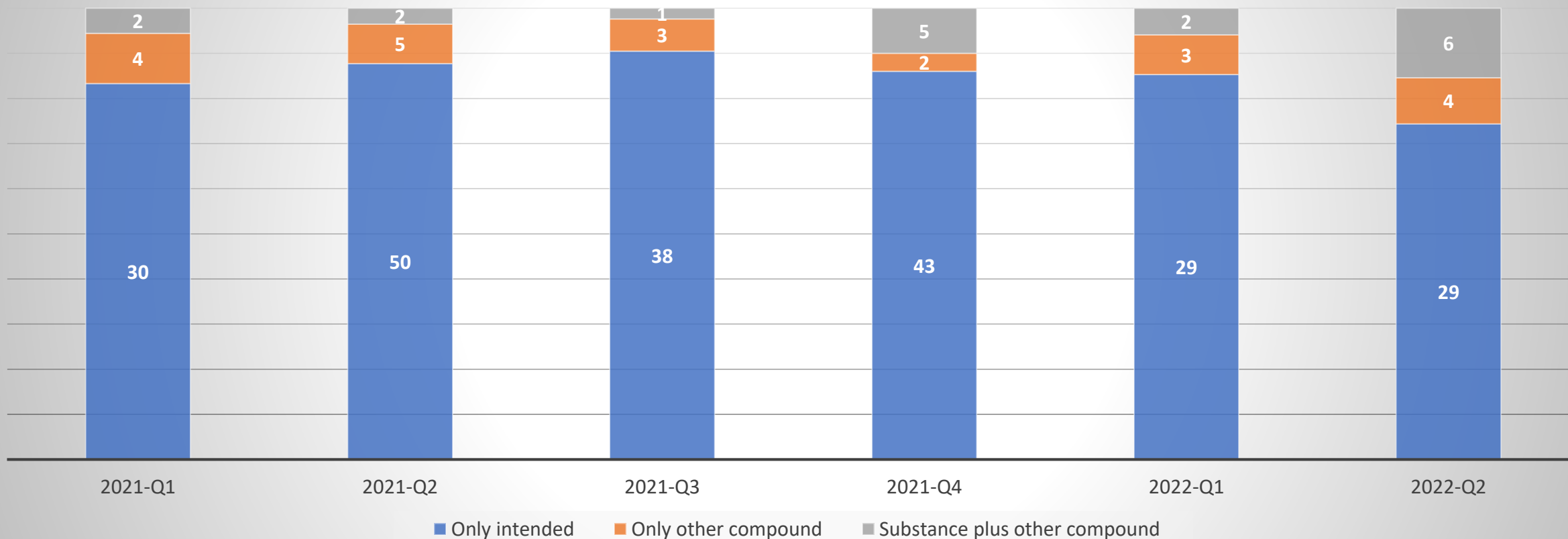
Adulteration Amphetamine samples



Adulteration of amphetamine is slightly increasing in the last two years

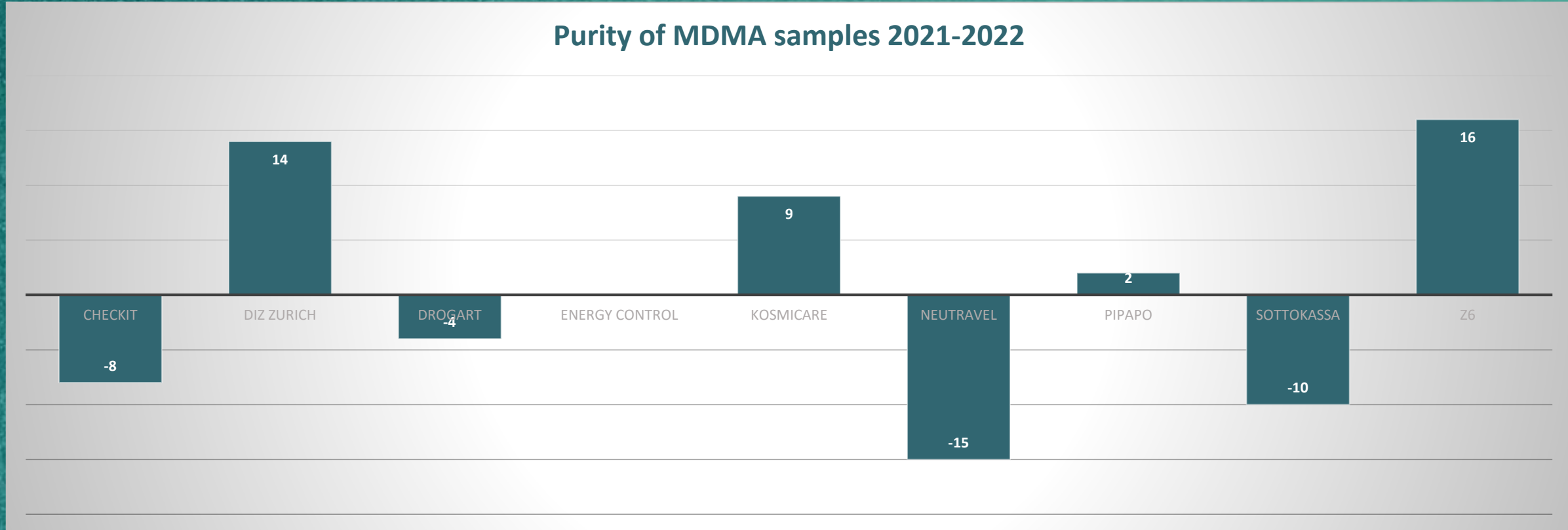
METAMPHETAMINE ADULTERATION (2021-2022)

Adulteration of Methamphetamine samples



Adulteration of Methamphetamine is increasing in the last year

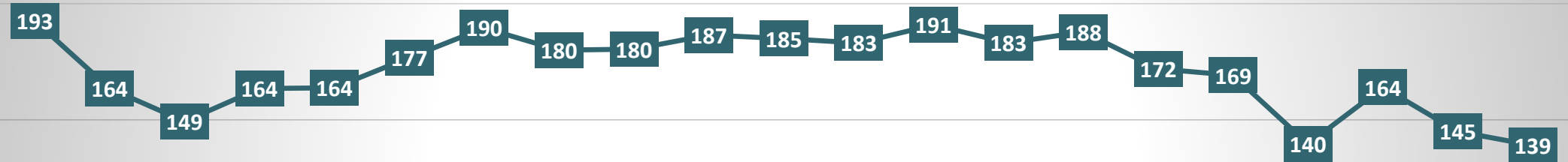
AVERAGE PURITY MDMA



The purity of MDMA crystal is remaining stable in all the countries analysed
The general main average was 79% in 2021 and 82% in 2022

TABLETS MDMA STRENGHT (2017-2022)

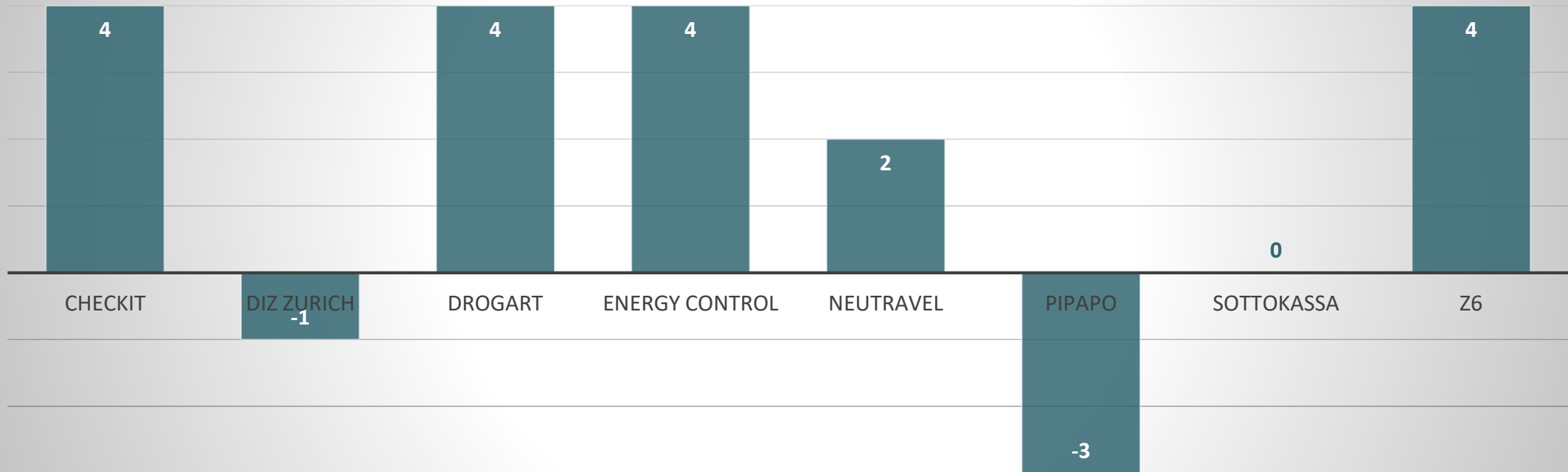
Average dose MDMA tablets (2017-2022)



QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2
2017			2018				2019				2020				2021				2022	

AVERAGE PURITY

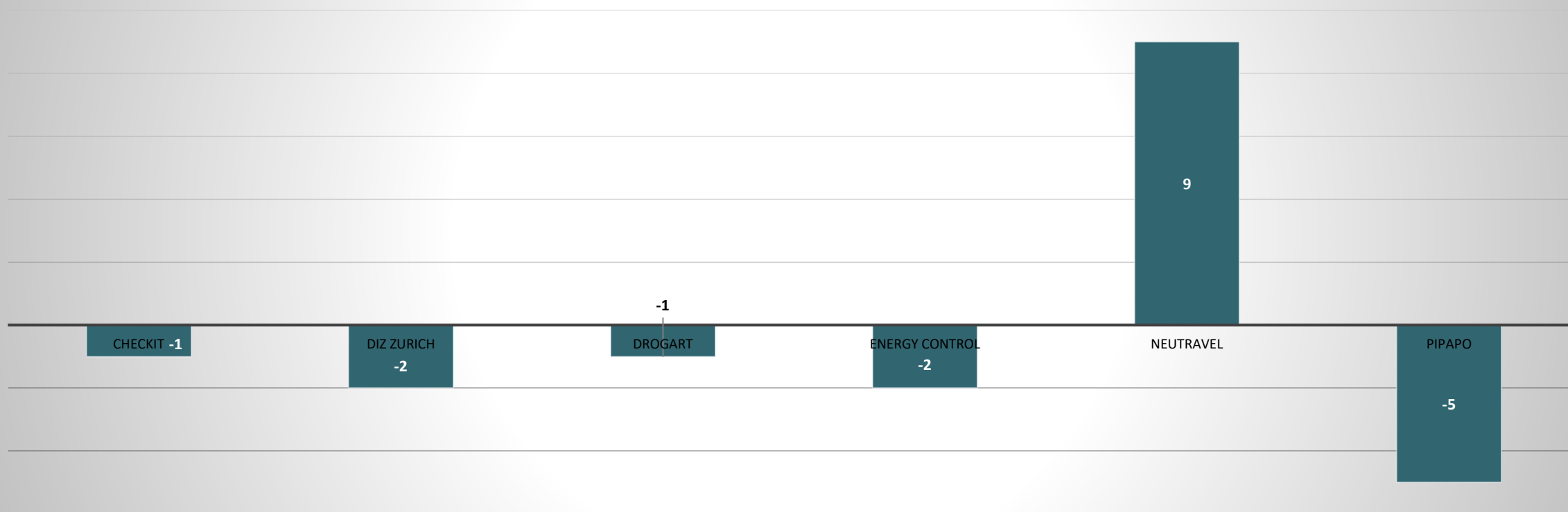
Difference of purity of cocaine samples 2021-2022



The main purity of cocaine remains pretty stable. It varies depending on the country
The general main average was 76% in 2021 and 77% in 2022

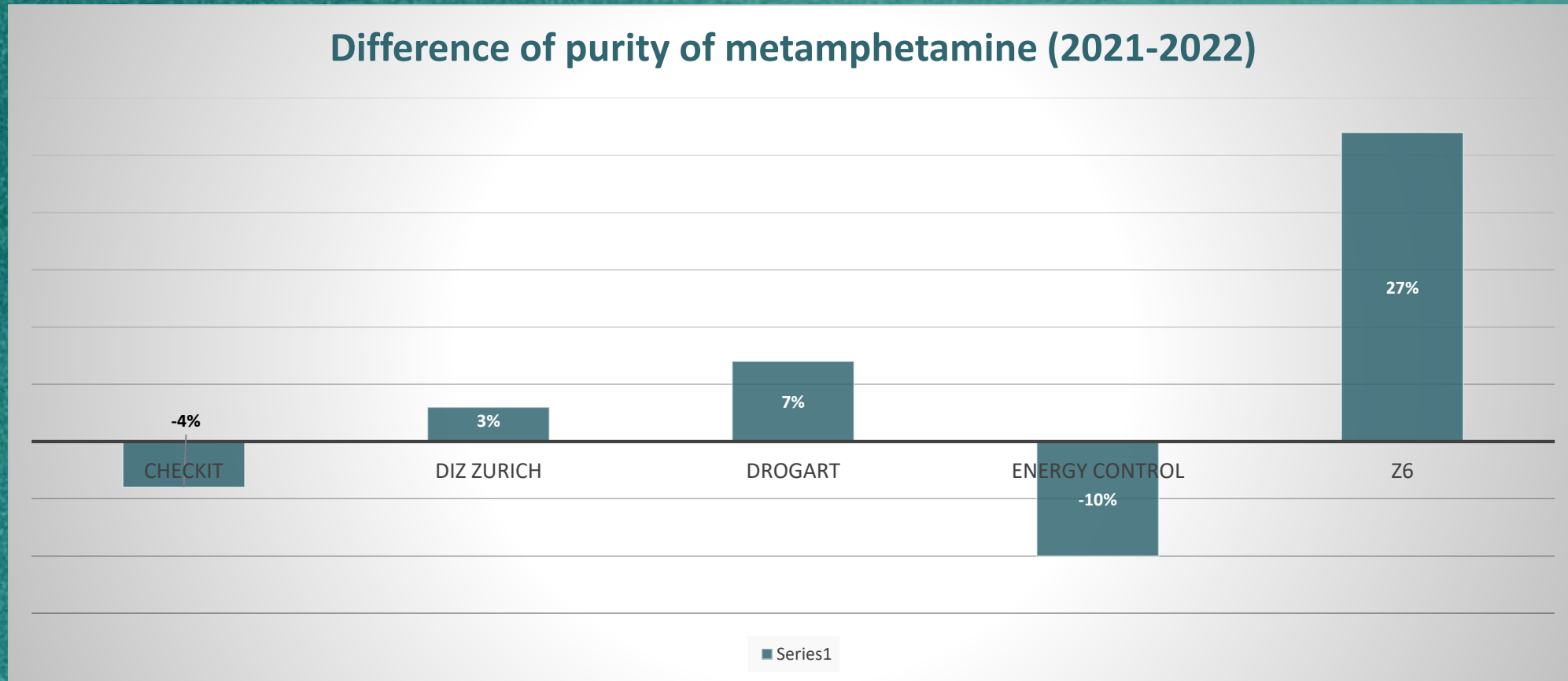
AVERAGE PURITY

Difference of purity of Amphetamines samples (2021-2022)



The main purity of amphetamine remains pretty stable. It varies depending on the country
The general main average was 44% in 2021 and 42% in 2022

AVERAGE PURITY



The main purity of metamphetammine remains stable. It varies depending on the country
The general main average was 83% in 2021 and 82% in 2022

NEW DRUGS DETECTED (2020-2022)

STIMULANTS

Sold as

Substance identified	2020	2021	2022
2-FA	2		
2-FMA	5	1	4
3,4-CTMP		2	
3-CMC		1	4
3-FPM		2	3
3-MMC	15	56	15
4-FA	2	7	2
4-fluoro-methylphenidate	6	7	
4-FMA			2
4-MEC	2		
5-MAPB	7	7	4
6-APB	6	16	3
Alpha-PHP	1	5	3
Alpha-PVP		2	
a-PVP		2	
Eutylone	2		
Isopropylphenidate	3	2	
MD-PHP			2
Mephedrone	71	75	34
N-Ethyl-Hexedrone (Hex-en)	6	7	
N-Ethyl-Pentedrone	5	1	2
Total general	133	193	78

Mainly cathinones:
3-MMC in 2020 & 2021
3-CMC in 2022

As adulterants

Substance identified	2020	2021	2022
3,4-methylenedioxy-N-benzylcathinone		1	1
3-CEC		1	2
3-CMC	6	6	14
3-MMC	13	15	7
4-CEC	4	1	1
4-CMC	10	8	7
4F-3-methyl-alpha-pvp	3		
4-fluoro-methylphenidate	3		
4-FMA	2		
4-MEC	1	1	
Alpha-PHP	2	4	
Amphetamine		4	2
Eutylone	4	6	
Mephedrone	2	4	1
Methiopropamine (MPA)			2
Mexedrone	1	3	
N-ethyl-heptedrone	5		
N-Ethyl-Hexedrone (Hex-en)	2		1
Total general	60	55	35

NEW DRUGS DETECTED (2020-2022)

BENZODIAZEPINES

	Substance (sold-as)	2020	2021	2022
Checkit	Clonazolam			1
	Etizolam	1		1
	Flualprazolam	1		
DrogArt	Bromazolam		1	
	Clonazolam		2	1
	Etizolam	4	2	
	Flualprazolam	1	2	
Energy Control	4'-Chlorodiazepam	1		
	Clonazolam	1		
	Etizolam	5	2	
	Flualprazolam		1	
	Flubromazepam			1
WEDINOS	Bromazepam	1	1	1
	Bromazolam			1
	Clonazolam	1	1	1
	Etizolam	25	28	22
	Flualprazolam	5	6	1
	Flubromazepam		1	1
	Flunitrazepam		1	
	Nitrazepam	13	41	24
	Phenazepam	1		
	Pyrazolam		1	
	Temazepam	8	8	1
Z6	Clonazolam		1	
	DeschloroEtizolam			1
	Etizolam	2		
	Flualprazolam	1		
TOTAL		71	99	57

	Adulterants	2020	2021	2022
Checkit	Flualprazolam	2	1	
	Flubromazepam			1
DIZ Zurich	Flubromazolam	1		1
	Etizolam	3	1	
	Flualprazolam	1	11	3
	Flubromazepam		1	
	Flubromazolam	2	2	1
	Meclonazepam		1	
DrogArt	Adinazolam	4	2	
	Bromazolam		1	
	Clonazolam	3	10	1
	Etizolam	1	1	1
	Flualprazolam	6	2	2
Energy Control	Flubromazepam	2	3	1
	Flubromazolam	5	4	
	Meclonazepam		1	
	Clonazolam	1		
	Diclazepam	1		
WEDINOS	Etizolam	1		
	Flualprazolam	1	3	
	Flubromazolam	1		
	Adinazolam		18	2
	Bromazolam			113
Z6	Clonazolam	7	35	12
	DeschloroEtizolam	26	31	11
	Diclazepam	3	2	2
	Etizolam	135	335	82
	Flualprazolam	141	170	56
	Flubromazepam	12	5	17
	Flubromazolam	154	271	61
	Meclonazepam	8	11	5
	Nitrazepam	1		
	Phenazepam	1	2	
	Temazepam		1	
TOTAL	Bromazolam		1	
	Flualprazolam	2	1	
	Flubromazolam	1		
TOTAL		526	927	372



Benzodiazepines are detected mainly as adulterants of other benzodiazepines such as alprazolam

NEW DRUGS DETECTED (2020-2022)

OPIOIDS

SOLD AS	Organisation	Substance identified	2020	2021	2022
	DIZ Zurich	Etonitazepine		1	
	DrogArt	Etazene		1	
	Energy Control	o-Desmethyltramadol		1	
	WEDINOS	o-Desmethyltramadol		1	1
TOTAL				1	4

ADULTERANTS			2020	2021	2022
	DrogArt	AP-238		2	
		Diampromide	4		
		Etonitazepine		1	
		Metonitazene		1	
	Legal-High-Inhaltsstoffe	o-Desmethyltramadol		1	
	WEDINOS	Butonitazene			2
		o-Desmethyltramadol		1	
TOTAL			4	6	2

Decrease of number of detection mainly as adulterants
Increase of nitazenes vs fentanyl

CONCLUSIONS

- During 2020 and 2022 the drug checking services received 26.078 samples from 11 countries. After the pandemic most of services increased the number of samples collected.
- Adulteration on MDMA is increasing. Mixes and substitutes are detected in pills.
- The adulteration of cocaine is slightly decreasing. However the adulteration of amphetamines (amphetamine and methamphetamine) is increasing.
- The main purity of MDMA, amphetamines and cocaine remains stable. However the amount of MDMA inside pills is decreasing.
- The drug checking services are detecting a high variety of NPS mainly cathinones and benzodiazepines. The new opioids detected by these services is pretty low and even more since 2022.