Coca e produção de cocaína

Em 2019, o cultivo de coca permaneceu em níveis historicamente altos e a produção de cloridrato de cocaína atingiu um recorde histórico. A pandemia de COVID-19 parece ter impactado a produção de coca e cocaína durante os três primeiros meses de 2020. Nesses estágios iniciais da pandemia, houve relatos de queda no preço das folhas de coca na Colômbia e no Peru, além de informações sobre interrupções na produção de cocaína na Colômbia devido à escassez de combustível (EMCDDA e Europol, 2020; Stargardter e Jorgic, 2020; UNODC, 2020). No entanto, essas interrupções parecem ter sido apenas temporárias.

Este recurso faz parte do relatório "Mercado de Drogas da UE: Cocaína — Análise aprofundada do EMCDDA e da Europol".

Última atualização: 6 de maio de 2022

Cultivo de coca: surgindo na América do Sul?

O cultivo global de coca permanece concentrado na Bolívia, Colômbia e Peru, mas a erradicação de plantações de coca em outros países nos últimos anos indica que ele pode estar se expandindo para além desses três países andinos, embora em pequena escala atualmente. Assim, em 2020 e 2021, a erradicação de plantas de coca foi relatada não apenas em países próximos aos três produtores andinos tradicionais, como o Equador, mas também em regiões mais distantes da América Central, incluindo Guatemala e Honduras (Departamento de Estado dos EUA, 2021) e México (Cervantes, 2021). Nestes três últimos países, instalações para processar folhas de coca em pasta de coca também foram encontradas dentro ou perto das plantações, não deixando dúvidas de que a intenção era produzir cocaína.

In 2020, global coca bush cultivation was estimated to have remained stable compared to the previous year, but remained at a high level by historical standards at 234 177 hectares (DEVIDA, 2021; UNODC, 2021c, 2021d). An estimated decrease in Colombia (–7 %) was offset by increases in both Peru (13 %) and Bolivia (15 %). In 2020, Colombia continued to account for the majority of global coca cultivation (61 %), followed by Peru (26 %) and Bolivia (12.5 %) (UNODC, 2021a). Coca cultivation does not appear to have been significantly affected by the restrictions adopted in response to the COVID-19 pandemic (UNODC, 2021a).

Cocaine production: going international and involving Europe

Most cocaine manufacture continues to take place in Bolivia, Colombia and Peru. Together these countries report the majority of cocaine laboratories dismantled globally. However, there is evidence that cocaine hydrochloride is refined elsewhere in South America, further along the trafficking routes, and now also increasingly in Europe.

In 2019, global cocaine hydrochloride production is estimated to have increased slightly to 1 784 tonnes, an all-time high, mostly due to an increase in Colombia (UNODC, 2021a). Estimates for cocaine hydrochloride production in 2020 are only available for Colombia, where it increased to an estimated 1 228 tonnes, approximately 10 % more than in 2019 and 233 % more than in 2014 (UNODC, 2021c). This is likely to lead to a further increase in global cocaine production in 2020, especially since coca cultivation increased in both Bolivia and Peru that year (see Coca cultivation: growing out of South America?). The trend towards an increase in efficiency of cocaine manufacturing processes reported in the last EU Drug Markets Report (EMCDDA and Europol, 2019) appears to be continuing and is possibly gaining more strength (UNODC, 2021a, 2021c). With even more cocaine becoming available, it is probable that trafficking of the drug to and in Europe will increase.

Cocaine chemicals: global seizures, controls and monitoring

Potassium permanganate is an essential chemical in the illicit manufacture of cocaine, mostly used as an oxidising agent to turn coca paste into cocaine base (see Figure The cocaine production process and the different cocaine products). It is the only cocaine-processing chemical listed in Table I of the 1988 United Nations (UN) Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. Efforts to control trafficking in potassium permanganate are complicated since it is used extensively by industries throughout the world, for instance in drinking water treatment, and also because it is produced in illicit facilities in South America. Licit imports of potassium permanganate to the three main coca-producing countries accounted for less than 1 % of the more than 36 000 tonnes traded internationally in 2020 (INCB, 2022).

Global seizures of potassium permanganate increased to 84.2 tonnes in 2020, 29 % more than in 2019 (INCB, 2022). It should also be noted that the Chinese authorities stopped shipments of potassium permanganate destined to 15 countries and totalling almost 1 700 tonnes in 2020, while India stopped a total of about 5 tonnes destined for two countries (INCB, 2022).

With about 65 tonnes seized, Colombia accounted for almost 77 % of global potassium permanganate seizures in 2020 and, as in previous years, a major source of these was illicit manufacture (INCB, 2022). Illicit manufacture of potassium permanganate using substances such as manganese dioxide and potassium manganate is a fairly long-standing phenomenon in Colombia, where 7.1 tonnes of manganese dioxide and 1.7 tonnes of potassium manganate were seized in 2020. Colombia also reported dismantling 6 illicit potassium permanganate manufacturing facilities in the first 10 months of 2021 (INCB, 2022).

Several other substances are used in the production of cocaine, and a number of them are in Table 2 of the 1988 UN Convention (see Section Cocaine chemicals: increasing seizures indicate cocaine production in Europe). Some of these chemicals, for instance ammonia, hydrochloric acid and sulfuric acid may be manufactured in illicit facilities in or near the cocaine-producing countries (INCB, 2021). Others are not under international control and are diverted from licit production, such as calcium chloride, more than 100 tonnes of which was seized in South America and, to a much lesser extent Europe, in 2020. Another such chemical, sodium metabisulfite was also seized in large amounts in South America as well as in Europe in 2020 (INCB, 2022; data from the European Commission).

European data on chemicals associated with cocaine production

A number of chemicals are associated with cocaine production. These include oxidants, reducing agents (often used to standardise the oxidation levels in cocaine base), solvents, drying agents (which contribute to the recycling of solvents), adulterants and other cutting agents, as well as some 'pre-precursors' (used to manufacture other chemicals). EU Member States report to the European Commission on the seizures and stopped shipments of precursor chemicals, 53 of which are monitored by the EMCDDA as being potentially related to cocaine production. Many of these are general purpose reagents and solvents, which, despite being associated with cocaine production, can also be used in the manufacturing of other drugs. The data presented in this section refer to these 53 substances, regardless of the context in which the incidents occurred. For completeness, the 53 chemicals associated with cocaine production monitored by the EMCDDA are listed below.

- Acids: *hydrochloric acid*, nitric acid, *sulfuric acid*.
- Adulterants: **atropine**, **benzocaine**, caffeine, inositol, **levamisole**, **lidocaine**, **phenacetin**, **procaine**, **tetracaine**, **tetramisole**.
- Solvent drying agents: **calcium chloride**, sodium sulfate.
- Oxidants: ***potassium permanganate*** and chemicals used in its manufacture or substitutes such as manganese oxide, **potassium manganate**, sodium hypochlorite and **sodium permanganate**.
- Reducing agents: **potassium metabisulfite**, **sodium bisulfite, sodium metabisulfite**.
- Solvents: *acetone*, **butyl acetate**, dichloromethane, *diethyl ether*, ethanol, **ethyl acetate**, **hexane**, isopropyl alcohol, ***methyl ethyl ketone (MEK)***, **methyl isobutylketone (MIBK**), methanol, propanol, petroleum spirits (e.g. aliphatic solvents), **propyl acetate**, **trichloroethene (TCE)**, *toluene*, xylene.
- Others: **activated charcoal** (filtering agent), ammonium hydroxide, ammonium chloride, benzene, calcium carbonate, calcium hydroxide, potassium carbonate, potassium hydroxide, sodium bicarbonate, sodium carbonate, sodium citrate, sodium hydroxide, **urea**.

Note: The chemicals displayed in bold are strongly associated with cocaine processing, and those displayed in italics are chemicals that are in Table 1 or in Table 2 of the 1988 UN Convention.

Cocaine chemicals: increasing seizures indicate cocaine production in Europe

Data reported to the European Commission by EU Member States suggest that Europe is a significant source for chemicals associated with cocaine manufacturing, and together with information on dismantled cocaine production facilities (see Section Manufacturing cocaine), confirm that stages of the cocaine manufacturing process are taking place in Europe, especially in the Netherlands and Spain.

Considering the 53 chemicals monitored as potentially associated to cocaine production, a total of 130 tonnes and 1.8 million litres were seized in the EU in 2019 and 2020, which represents a 1.4 and 6-fold increase respectively, compared with the 2017-2018 period. Attempts to source these chemicals in Europe that resulted in stopped shipments amounted to 36 tonnes and close to 45 800 litres in the 2019-2020 period, but given the absence of reports of stopped shipments in 2020, it is not comparable to previous periods. While these data cannot be taken as a direct indicator of cocaine production in Europe, they provide evidence of the scale of the amounts of chemicals seized or stopped in Europe in connection with illicit drug production.

Potassium permanganate is one of the chemicals more directly associated with cocaine processing. Approximately 3.3 tonnes of potassium permanganate was seized in 5 Member States (Germany, Hungary, Latvia, Netherlands, Spain) in 2019 and 2020. The vast majority was seized in a single operation in Germany in 2019 (3 tonnes), where it was found on the property of an individual known to rent farm buildings to people associated with large-scale illicit drug production (information reported to the European Commission). As in previous years, all stopped shipments of potassium permanganate in Europe, amounting to 36 tonnes in 2019, were reported by Spain. No stopped shipments were reported to the European Commission in 2020.

Seizures of chemicals that can be used as precursors or substitutes of potassium permanganate were reported for the first time in Europe in 2018 and 2019. These included potassium manganate (73 kilograms) and the substitute sodium permanganate (95 kilograms), all reported by the Netherlands. This may be an indirect indicator of when the oxidation stage of cocaine processing commenced in the EU. Reducing agents, such as sodium metabisulfite (100 kilograms) and sodium bisulfite (651 kilograms) continued to be seized in Europe, exclusively in the Netherlands, in 2019-2020, with seizures of the latter increasing considerably in 2020. These chemicals are strongly associated with cocaine production, since they are typically not used in the manufacturing of other drugs.

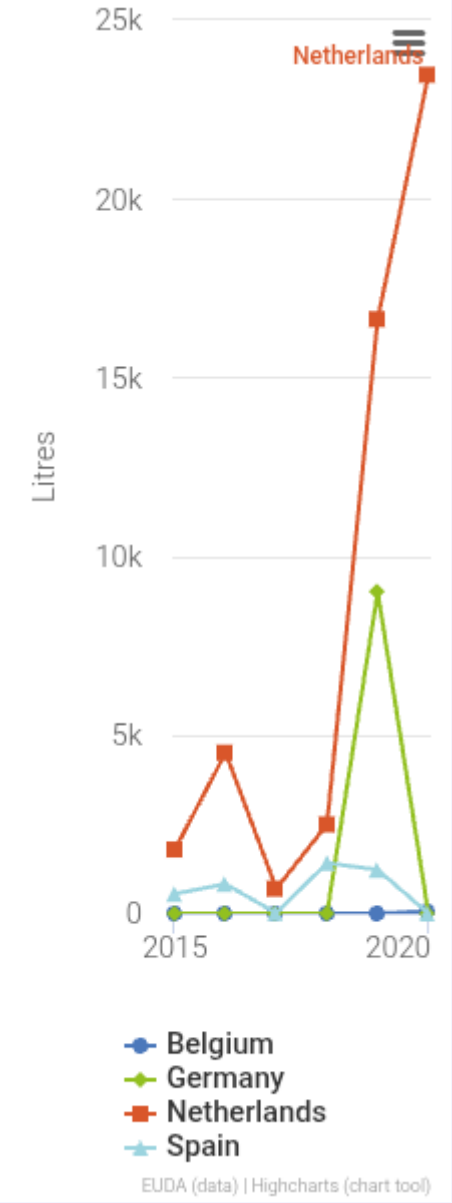
Seizures of drying agents reached their highest level on record in 2019-2020, at 2.1 tonnes (data from European Commission). These chemicals, which in Europe mostly consist of calcium chloride, have a role in drying the solvents used in the stages of cocaine production where the presence of water must be eliminated.

Finally, approximately 2.8 tonnes of cocaine cutting agents, including adulterants, were seized in the EU in 2019 and 2020, the majority of which was tetramisole (1.9 tonnes, all seized in the Netherlands). Tetramisole is a commercially available veterinary medicine made up of equal proportions of levamisole and dexamisole, the two enantiomers of phenyltetrahydroimidazothiazole (PTHIT) (Casaleet al., 2012). As well as enhancing profits by bulking the quantity, there is evidence to suggest that levamisole enhances the effects of cocaine in a synergistic way, as it was found to produce no psychoactive effect when administered on its own (Tallarida et al., 2014). Preliminary data for 2021 reported to the European Commission suggest that these seizure levels were maintained or increased in 2021, with more than 1.8 tonnes seized, again in the Netherlands.

Ethyl acetate and the European connection

Ethyl acetate is a polar aprotic solvent, which makes it suitable for dissolving cocaine base before processing it into cocaine hydrochloride. Record amounts of close to 50 400 litres of ethyl acetate were seized in Europe in 2019 and 2020. The vast majority of these seizures occurred in the Netherlands (see Figure Quantity of ethyl acetate seized in Europe).

Quantity of ethyl acetate seized in Europe, 2015-2020



Source: Data on seizures of precursors in the European Union collected by the European Commission. The source data for this graphic is available in the source table on this page.

Source table. Quantity of ethyl acetate seized in Europe (2015-2020) (Litres)

Country	2015	2016	2017	2018	2019	2020
Belgium	0	0	0	0	0	60
Germany	0	0	0	0	9000	0
Netherlands	1791	4500	695	2493	16630	23468
Spain	553	825	8	1411	1225	0

Recent evidence from the Cocaine Signature Program (CSP) of the US Drug Enforcement Administration (DEA) has highlighted a new trend in cocaine production related to ethyl acetate that supports the mounting evidence that significant quantities of cocaine hydrochloride are

produced in Europe.

According to DEA analysis, the 'clean ethyl acetate processing' method is mainly associated with cocaine samples seized in Europe that have been manufactured from coca leaves originating from Bolivia, Peru, or are of unknown origin, but excludes European samples made from Colombian coca (which represent the majority). Importantly, very few of the thousands of cocaine samples seized in the United States and analysed by the DEA since 2018, almost all of which are made from Colombian coca, had a similar profile (DEA, 2020, 2021a, 2022; INCB, 2021). In a recent report, the DEA (2021b) indicated that very few of the 26 analysed samples that were seized in Peru contained traces of ethyl acetate.

Hence, there exists a distinctive forensic connection between cocaine hydrochloride manufactured from coca leaves of Bolivian and especially Peruvian origin using the 'clean ethyl acetate processing' method and a type of cocaine hydrochloride available practically exclusively on the European market. Importantly, this connection must be considered in the broader context of:

- large quantities of ethyl acetate seized in Europe in 2019 and 2020, particularly in the Netherlands (see Figure Quantity of ethyl acetate seized in Europe);
- an increase in the proportion of European cocaine samples found to be made from Peruvian coca (see Box Profiling European cocaine) observed since the last edition of this report (EMCDDA and Europol, 2019) and;
- new information on cocaine production facilities dismantled in the Netherlands and Spain recently (see Section Manufacturing cocaine).

These preliminary findings support the hypothesis that cocaine base originating from Peru and Bolivia (either raw or concealed in carrier materials) is converted into cocaine hydrochloride using the 'clean ethyl acetate processing' method in Europe. In turn, this potentially means that one or several criminal networks active in South America and Europe have established a 'niche' position on the European cocaine market by manufacturing their own cocaine hydrochloride in the Netherlands from a specific 'pipeline' carrying cocaine intermediary products (coca paste and cocaine base) made in Bolivia and Peru.

Source table. Quantity of ethyl acetate seized in Europe (2015-2020) (Litres)

Manufacturing cocaine: new developments highlight larger European role in global production

In addition to seizures and stopped shipments of cocaine chemicals, recent information provides more details on cocaine hydrochloride production in Europe, which appears to be larger and more sophisticated than was previously thought (EMCDDA and Europol, 2016, 2019). Indeed, recent data indicate that, at least since 2018 and probably earlier (Cawley, 2014), large amounts of cocaine hydrochloride have been processed in Europe, especially the Netherlands, Spain, and more recently Belgium, from intermediary products (coca paste and cocaine base) smuggled from South America. The evidence indicates that, in most cases, the intermediary product converted into

cocaine hydrochloride in Europe is cocaine base extracted from carrier materials (such as charcoal, coco pulp, plastics) in which it was chemically concealed in order to facilitate smuggling. Europol information indicates that the methods used to incorporate cocaine in carrier materials, particularly charcoal, have recently become more sophisticated, making detection by law enforcement more difficult. Extraction of cocaine from carrier materials has usually taken place in dedicated 'secondary extraction' facilities. However, since in many cases the cocaine extracted from carrier materials is in base form, it must subsequently be transformed into cocaine hydrochloride either in the same facility or in a dedicated 'base to hydrochloride' illicit laboratory (EMCDDA and Europol, 2016, 2019).

Spain reported to the EMCDDA that between October 2019 and July 2021, 11 illicit cocaine secondary extraction facilities were dismantled, with estimated cocaine hydrochloride production capacity ranging between 3 and 500 kilograms a week (CITCO, 2021). Meanwhile, the Dutch Police reported that 45 secondary extraction facilities were dismantled in the Netherlands between 2018 and 2021. Additional Dutch law enforcement information specified that more than 10 of these facilities had an estimated production capacity of between 100 and 200 kilograms of cocaine hydrochloride a day, that is, between 700 kilograms and 1.4 tonnes a week. This suggests that cocaine hydrochloride manufacturing activities in Europe are on a much larger scale than was previously understood.

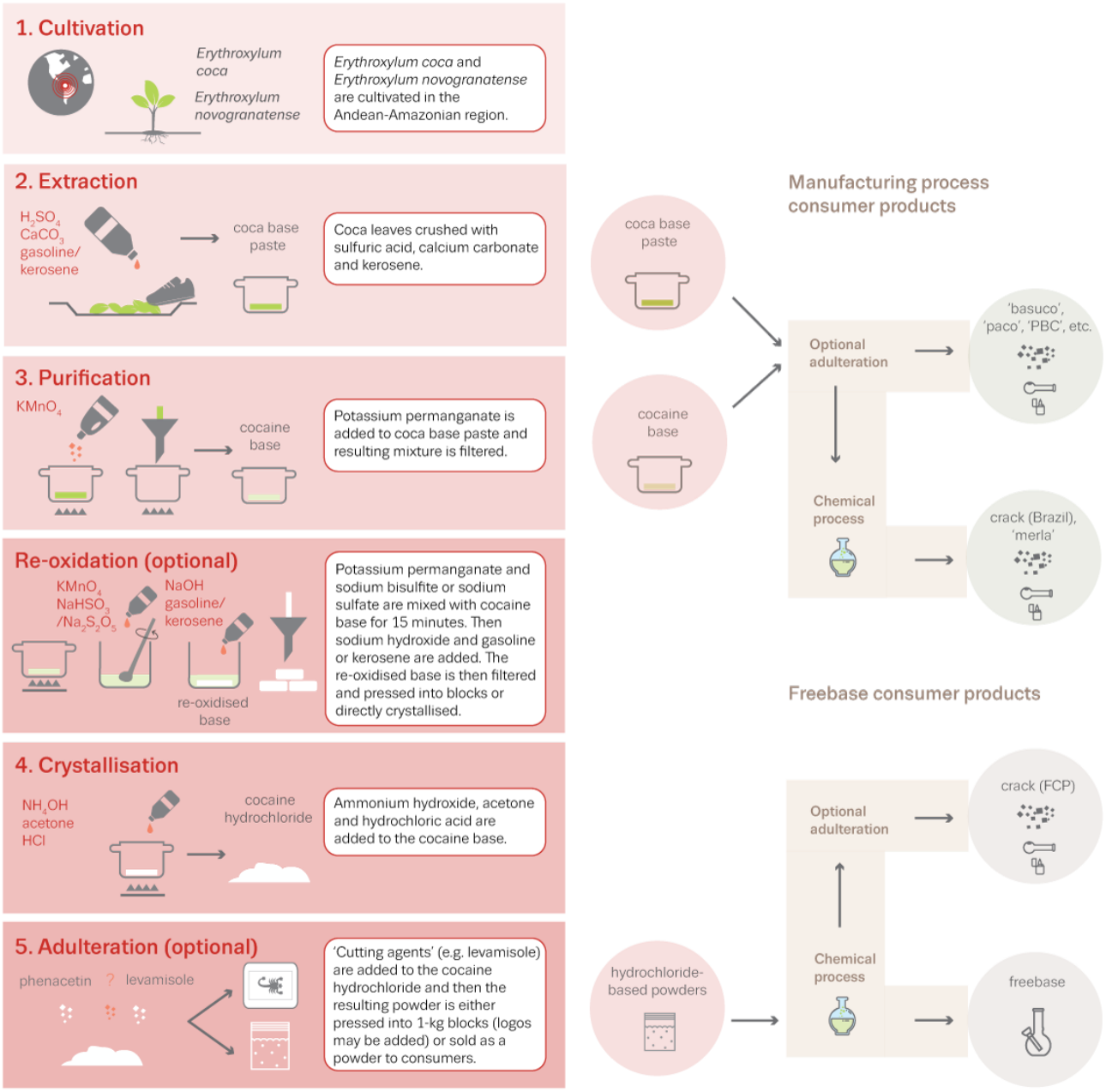
Recent law enforcement information also suggests that the cocaine production facilities dismantled in the Netherlands are sophisticated and capable of producing high-purity cocaine. Several factors support this finding. First, some facilities were reported to be exact copies of the layout of facilities producing cocaine hydrochloride in Colombia. Second, some of the equipment seized in Dutch laboratories was built in the Netherlands based on Colombian blueprints, to a higher specification than the Colombian equivalents. Of note, it is possible that the same facilitators who, for years, have been manufacturing synthetic drug production equipment in the Netherlands now also make cocaine production equipment. Third, the chemicals seized in Dutch and Spanish facilities, including potassium permanganate and sodium metabisulfite, imply that the re-oxidation step is performed there. The re-oxidation of cocaine base is a fairly recent and sophisticated method used in Colombia in order to standardise batches of cocaine base of different origins prior to conversion to hydrochloride, increasing the efficiency of production (EMCDDA and Europol, 2019; INCB, 2018). There are strong indications that the chemicals seized in cocaine facilities in the Netherlands were procured in EU countries including Germany, Poland and Spain. This means that these chemicals are probably of higher quality than the chemicals used in Colombian cocaine laboratories. Fourth, a number of Colombian nationals have been arrested while working in illicit cocaine facilities in the Netherlands and Spain, which could indicate that some Dutch, Spanish and Latin American criminal networks are collaborating in order to produce cocaine in Europe, with each side providing connections and know-how in order to make production more efficient and profitable. This bears a striking similarity to recent findings related to methamphetamine production facilities dismantled in Belgium and the Netherlands, where suspects originating from Latin America have been arrested in several cases and linkages between European and particularly Mexican cartels have been observed (see EU Drug Markets: Methamphetamine).

In addition to these concerns, intelligence suggests that some of the large facilities found in the Netherlands and Spain were processing coca *paste* (see Figure The cocaine production process and the different cocaine products). Some of the chemicals seized in illicit facilities in both Spain and the Netherlands can be used to process coca paste into cocaine base, a key step before cocaine hydrochloride can be manufactured (see Figure The cocaine production process and the different cocaine products). This implies that shipments of coca paste, and potentially of fairly large quantities, are now smuggled into Europe. However, no large seizures of coca paste (or cocaine base) have been reported to the EMCDDA by European countries in recent years (30 kilograms of cocaine base in 2018 and 680 grams in 2019), although a few seizures of hundreds of kilograms of coca paste bound for different European countries were reported in Colombia in the mid-2010s (Cawley, 2014). The smuggling of large amounts of coca paste into Europe clearly constitutes an intelligence gap and a threat that must be better understood and documented.

Any availability in Europe of large amounts of cocaine base and coca paste creates a risk that new, inexpensive, smokeable cocaine products similar to those available in many South American countries may emerge on European drug consumer markets in the future (see Figure The cocaine production process and the different cocaine products). This has happened in South America. In Argentina, Brazil and Chile, for example, coca paste and cocaine base, trafficked from Bolivia, Colombia and Peru are used to manufacture smokeable cocaine products under street names such as 'basuco', 'merla', 'paco', 'PBC', 'crack' (UNODC, 2021e). Such smokeable products would be an unwelcome addition to Europe's drug markets, as they are known to rapidly lead to serious health harms for users. However, no evidence has been found that such products are sold to consumers in Europe at present, and it appears that the coca paste and cocaine base trafficked to Europe mainly serve as starting materials for the manufacture of cocaine hydrochloride. Indeed, the results of a consultation among European forensic institutes and drug checking services in 2021-2022 suggest that the only smokeable cocaine product available in Europe at present is 'crack' manufactured from cocaine hydrochloride, and not from cocaine base or coca paste.

These developments related to cocaine production processes taking place in Europe, requiring large quantities of intermediary products like cocaine base and the more bulky coca paste, as well as the diversion of tonnes of auxiliary chemicals, suggest that concerted efforts are needed to better understand and respond to these new challenges.

The cocaine production process and the different cocaine products



Sources: EMCDDA and UNODC (2021e)

Profiling European cocaine

The Cocaine Signature Program (CSP) run by the US Drug Enforcement Administration (DEA), performs in-depth chemical analyses on samples of cocaine hydrochloride obtained from bulk seizures. While it is primarily focused on seizures made in the United States, a smaller number of samples seized in Europe are also analysed. The testing provides extremely accurate (97 % confidence level) evidence of the geographical origin of the coca leaf used for processing into cocaine base, the starting material for cocaine hydrochloride. Testing by the CSP also determines the purity of seized samples.

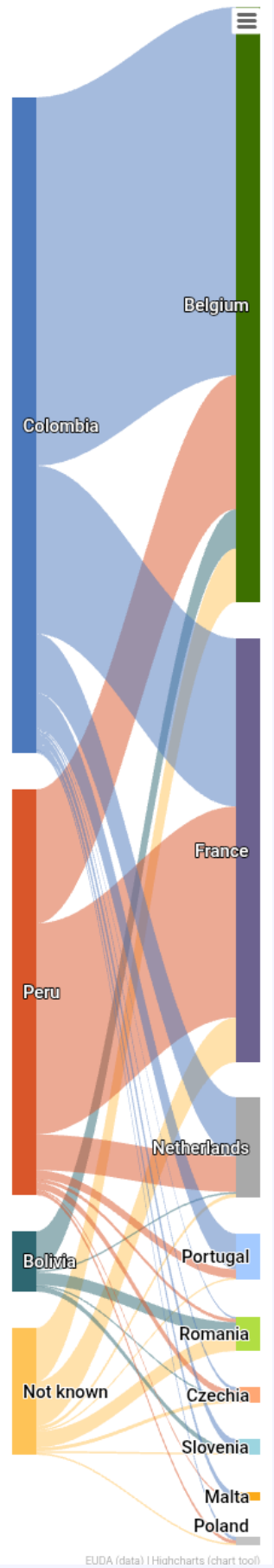
Although the samples are not representative of all of Europe, the findings show how useful this type of analysis can be. In the previous edition of this report (EMCDDA and Europol, 2019), findings pertaining to 474 samples of cocaine hydrochloride submitted by 10 EU Member States between 2015 and 2018 were reported. This updated report presents results for 699 samples submitted by nine EU Member States between 2018 and 2020 (see Figure 699 samples of cocaine hydrochloride (HCl) submitted by 9 EU countries between 2018 and 2020).

In the 699 samples analysed, purities varied between 15 % and 97 %. In all nine Member States, purities of 90 % or more were detected, while samples of less than 70 % purity were found in four Member States (see Figure Purity of cocaine seized by country). This suggests that, at the importation and wholesale levels, the cocaine available in Europe continues to be of high or very high purity.

A little more than half (52.5 %) of these samples were of Colombian origin, which is well below the 68 % reported in the previous report (EMCDDA and Europol, 2019). A majority (54 %) of the samples from Colombia continued to originate in the three large coca-growing regions of the south-west, namely Cauca, Nariño and Putumayo, which are also reported as the main coca sources of the cocaine available in the United States (DEA, 2021a). Colombia, the world's largest cocaine-producing country, continues to be the most frequent country of origin identified in EU samples overall. However, out of the samples submitted by EU Member States between 2018 and 2020, sources other than Colombia now constitute the majority of all samples in more EU countries (3/9) than in the previous exercise (2/10).

A third (32 %) of the total number of EU samples originated from Peru, the world's second-largest coca cultivating country, and half of those samples were submitted by France. In the previous edition of this report, Peruvian samples represented 19 % of the total (EMCDDA and Europol, 2019). Since almost all of the cocaine seized in the United States and analysed by the CSP was found to originate in Colombia (DEA, 2021a), this suggests that a significant proportion of the cocaine produced in Peru is exported to Europe either as hydrochloride or as cocaine base or coca paste (see Section Manufacturing cocaine). Bolivia, the third-largest global coca cultivating country, was identified as the origin of only 34 samples, or about 5 % of the total, a small increase from the previous report (EMCDDA and Europol, 2019).

699 samples of cocaine hydrochloride (HCl) submitted by 9 EU countries between 2018 and 2020

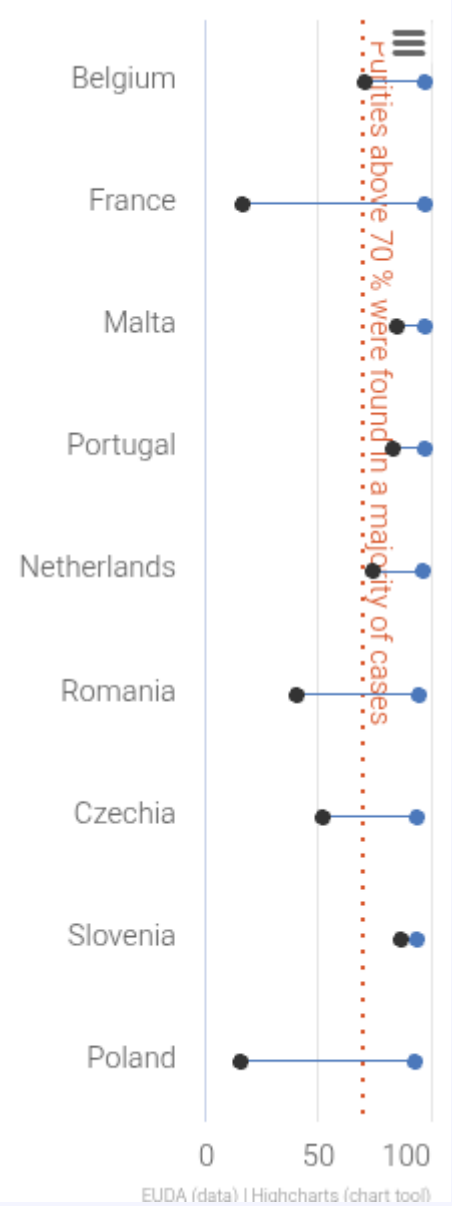

Belgium
Colombia
France
Peru
Netherlands
Bolivia
Portugal
Romania
Not known
Czechia
Slovenia
Malta
Poland
EUDA (data) | Highcharts (chart tool)

The source data for this graphic is available in thesource table on this page.

Source table. 699 samples of cocaine hydrochloride (HCl) submitted by 9 EU countries between 2018 and 2020

Origin	Destination	Number
Colombia	Belgium	206
Peru	Belgium	75
Bolivia	Belgium	22
Not known	Belgium	30
Colombia	France	94
Peru	France	118
Not known	France	25
Colombia	Netherlands	33
Peru	Netherlands	20
Bolivia	Netherlands	1
Not known	Netherlands	2
Colombia	Portugal	20
Peru	Portugal	5
Not known	Portugal	1
Colombia	Romania	1
Peru	Romania	2
Bolivia	Romania	7
Not known	Romania	9
Colombia	Czechia	2
Peru	Czechia	4
Bolivia	Czechia	1
Not known	Czechia	2
Colombia	Slovenia	5
Bolivia	Slovenia	3
Not known	Slovenia	1
Colombia	Malta	4
Peru	Malta	1
Colombia	Poland	2
Peru	Poland	2
Not known	Poland	1

Purity of cocaine seized by country



The source data for this graphic is available in the source table on this page.

Country	Purity lowest	Purity highest
Belgium	70	97
France	16	97
Malta	84	97
Portugal	83	97
Netherlands	74	96
Romania	40	94
Czechia	51	93
Slovenia	86	93

Country	Purity lowest	Purity highest
Poland	15	92

Source table. 699 samples of cocaine hydrochloride (HCl) submitted by 9 EU countries between 2018 and 2020

Environmental impact of coca cultivation, cocaine production and trafficking

The environmental harms caused by coca cultivation, cocaine production and trafficking are multifaceted. The link between coca cultivation and deforestation is complex and influenced by a number of factors, such as conflict, poverty and insecurity, and past development projects (Dávalos, 2018; Dávalos et al., 2016; Negret et al., 2019). Fundamentally, removing vegetation from a patch of land in order to cultivate a single type of plant, in this case coca, has a negative effect on biodiversity, and can lead to erosion and soil depletion. The drive to maximise the yield of the coca bush often leads to the use of chemical fertilisers, herbicides and pesticides, resulting in the pollution of soils and risks contaminating rivers and underground water deposits. Likewise, aerial eradication of coca crops, through the spraying of herbicides such as glyphosate, can pose a severe threat to the environment as well as the health of local communities (Camacho and Mejía, 2017).

A extração química do alcaloide cocaína das folhas de coca e sua conversão em cloridrato de cocaína também acarretam graves consequências ambientais. Muitos dos produtos químicos utilizados no processamento das folhas de coca para a obtenção do cloridrato de cocaína, incluindo permanganato de potássio e solventes como acetona, tolueno, querosene e ácidos, são perigosos. Os resíduos resultantes da produção de cocaína são frequentemente descartados no solo ou em córregos e rios (EMCDDA e Europol, 2016). Muitos desses produtos químicos também são utilizados em instalações de extração e processamento de cocaína na Europa, onde a cocaína base é extraída de materiais carreadores e, em seguida, processada para a obtenção do cloridrato de cocaína. O aumento na detecção dessas instalações pode indicar um crescente impacto ambiental negativo decorrente do processamento de cocaína na Europa.

O impacto ambiental do transporte de cocaína entre os países de origem e os mercados consumidores é difícil de avaliar, uma vez que o tráfico transatlântico em larga escala ocorre principalmente por meio de remessas de mercadorias lícitas, contribuindo, assim, para as consequências ambientais gerais das cadeias de abastecimento globais lícitas. Considerando as centenas de toneladas de cocaína apreendidas globalmente, as emissões relacionadas ao transporte de cocaína por meio de frete marítimo e aéreo, bem como por aviões e barcos de menor porte, podem ser consideráveis.

Referências

Consulte a lista de referências utilizadas neste recurso.