Review of Experiments
Evaluation and Comparison of Kits for the Detection of Drugs
NIK® (Public Safety, Inc.) and STINGER (IDenta)

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CONTENT

1 - INTRODUCTION

The utilization of tests in the field could prove useful for **preliminary detection** of chemical products, if a rapid decision must be taken during the investigation.

The tests which are based on color reactions are known and have been used for a long time. These tests react to a large number of products, and their response varies according to the purity and the quantity of the analysed product. The presence of other compounds could interfere. This is why a laboratory analysis is required for **certain identification**.

Among the kits fot the detection of drugs, the tests NIK are the most frequently employed by the services. Recently, a new brand of kit for the detection of drugs has been available in the market: the kits STINGER IDenta.

This study intends to examine the performances, the ease of utilization and the interpretations of the tests NIK and the kits of STINGER IDenta. Only these two products had been selected due to their compatibility with **utilization in the field** (material for a unique use, reagents incorporated in the kit).

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Reminder:
If the quantity of the seized sample is very small, send the entire sample to the laboratory in order to permit a complete analysis of the powder (especially for comparative research).

2 - PRESENTATION AND TECHNICAL CHARACTERISTICS OF THE KITS

The following table shows some technical characteristics of the studied kits:

	Sample Collection	**Presevation**	**Shelf Life**	**Tracing the Source**
IDENTA KIT	Directly, with the attached conical sampling device	-50 - +45°C	2 years	No information at present
TEST NIK	With a supplied paper spatula	In a dry and dark place	No information	Package No.

The neutralization of strong acid is provided as part of the IDenta kits, while in tests NIK the neutralization agents, which have to be bought and paid separately (tests F), are added after the reaction.

The kits were acquired from the following distributors:

- tests NIK® : SAS MD-TECH, 725 rue Louis Lépine Le Millénaire, 34000 Montpellier tel : 04 67 99 53 29.
- Kit STINGER IDenta : Ibtec (Hemeth Corp.), 111 rue du 1er Mars 1943, 69100 Villeurbanne, contact : Laurent Elbaze, tel : 06 03 29 11 13.

The following kits STINGER IDenta are available at present: Cocaine/Crack, Heroin, MDMA ("Ecstasy")/MDA, Methamphetamine ("Crystal") and Marijuana/Hashish.

The tests NIK corresponding to the detection of the equivalent products are tests A, G, B, K, L, I, U and E.

A: Marquis reagent, for opium alkaloids, heroin and amphetamines derivatives.
G: Modified Scott reagent, for cocaine hydrochloride and "Crack".
B: Nitric acid, for opium alkaloids, heroin and for an indication of possible presence of other narcotics.
K: for heroin, codeine and morphine.
L: Modified Mecke reagent, for brown heroin.
I: Leiberman reagent, for general screening.
U: for amphetamine and ecstasy.

In the case of tests NIK, it is recommended to neutralize the reagents with test F.

IDENTA kit for the detection of amphetamine also exists, but it was not available in the time of this study.

3 - PROTOCOL OF EXPERIMENTS

Choice of samples submitted to tests

The samples submitted to the experiments are samples from seizures, representative of products which are analysed routinely in the laboratory. The samples were selected according to information from the 2004 data base statistics "STUPS ©" (System of Standardized of Treatment Drugs). This data base was supplied by the five laboratories of the Scientific Police.

The technique of experiments

The utilization of the kits and experiments was carried out according to the protocol indicated by the manufacturer (reading carefully the supplied instructions for use).
In the case of the tests NIK, there exists an annexed diagram ("multi-testing" chart).

The samples were tested twice.

The experiments were carried out from December 2005 to January 2006, in a laboratory room, at ambient temperature of 22 °C.

4 - EVALUATION OF THE COCAINE KITS

Statisics 2004 (STUPS ©) Cocaine

The distribution of the chemical forms of cocaine are te followings:
Hydrochloride:79%
Base and Hydrochloride: 18%
Base: 2%

The most frequently-encountered cutting agents are sugars (mannitol 25%, lactose 17%, inositol 12%, glucose 3% and sucrose 5%) and adulterants (phenacetine 23%, lidocaine 15%, and caffeine 11%).

Other products present in the cocaine samples are:
amidon: 4%
paracetamol: 2%
bicarbonates: 1%
diltiazem: 1%
boric acid: 1%
hydroxyzine : 1%

Levamisole is a cutting agent which appeared in 2004.

Atropine is a cutting agent which appeared in 2005.

"Subutex " is a medication used in the treatment of opiates substitution. Its principal active ingredient is found in 5% of the cases with powders which do not contain drugs and in 9% of the cases of tablets which do not contain drugs.

The IDENTA kit for cocaine/crack on the one hand and the combination of tests NIK A and G (as recommended on the multi-testing diagram) on the other hand were tested on the different selected samples (17).

The results are presented in the following table:

Sample	IDENTA cocaine		NIK	
	step1	**step2 confirmation**	**Test A**	**Test G**
Crack {(cocaine base (84%)}	+*	+*	Salmon pink	+
Cocaine HCl (76%) + levamisole, hydroxyzine	+	+	Salmon pink	+
Cocaine HCl (42%) + lidocaine	+	+	Salmon pink	+
Cocaine HCl (42%) +boric acid, inositol	+	+	**uncolored**	+
Cocaine HCl (19%) + lactose	+	+	**uncolored**	+
Cocaine HCl (7%) + mannitol + paracetamol, phenacetine	+	+	**uncolored**	+
Cocaine HCl (4%) + lidocaine, mannitol	+	+	**uncolored**	+
Atropine (pure)	+ (on the attached conical sampler)	_	**uncolored**	_
Lidocaine(pure)	+ (on the attached conical sampler)	_	**uncolored**	**+**
Pheacetine (pure)	_	useless	**uncolored**	_
Subutex 8mg	+ (on the attached conical sampler)	_	violet	**+**
Sugars (inositol, mannitol, sorbitol, saccharose, lactose, glucose)	_	useless	Pale yellow	_
Amidon	_	useless	**Uncolored**	_
Sodium bicarbonate	_	useless	**Uncolored** (effervescence)	_
Boric acid	_	useless	**Uncolored**	_
MDMA HCl (27%)	_	useless	**dark violet**	_
Heroin HCl (71%) + caffeine, codeine, glucose	+ (on the attached conical sampler)	_	**chestnut brown** / **Later a shadow of violet**	**+**

* cocaine in the form of "crack"

IDENTA Kit

+: positive reaction (step1: blue color, step 2: green color)
-: negative reaction (no color or a color different from the expected one)

NIK test G

+: blue color
-: no color

Comments on the IDENTA kits

The blue color of step 1, obtained after breaking the first ampoule, and the green color of step 2 indicate the presence of cocaine hydrochloride (cocaine HCl 42%). (Figure caption)

The combination of the two steps allows the elimination of false positives in step 1 (lidocaine, subutex, heroin HCl 71%, atropine). Therfore there are no false positives among the different selected products (17).

The differentiation between the two forms of cocaine (crack or cocaine hydrochloride) is easily made.

The red-violet color in step 2 indicates the presence of heroin, which may serve for presumption of the drug.

The IDENTA kit is highly suitable for the detection of cocaine.

Comments on the NIK tests A and G

The salmon pink color of test A is characteristic of the presence of cocaine (cocaine HCl 42%). (Figure caption)



The blue color of test G indicates the presence of cocaine hydrochloride (cocaine HCl 42%). (Figure caption)

Test A

Test A corresponds to the Marquis test which reacts with a large variety of compounds, particularly with cocaine (a characteristic salmon pink color).

It is necessary to wait a few minutes in order to obtain a clear color and consider the test as positive.

In case of less concentrated samples, the color develops too slowly after breaking the ampoule, in a way which does not allow the test to be considered positive.
Lidocaine also gives rise, with a large delay, to a pink color slightly different from the salmon pink of cocaine.

The test A is not sensitive enough for a detection of cocaine (in "street"-level concentrations).

Test G

The test reacts well to the presence of cocaine in all the tested concentrations.
It should be noted that after breaking the second ampoule, the expected pink color does not appear.
No distinction between crack and cocaine hydrochloride is observed.
Three false positives (lidocaine, subutex and heroin hydrochloride 71%) are observed in the 17 selected samples, corresponding to 17%.

Only the test G is suitable for the detection of cocaine, bearing in mind the limitations cited above.

5- EVALUATION OF THE HEROIN KITS

Statisics 2004 (STUPS ©) Heroin

The distribution of the chemical forms of heroin are the followings:
Hydrochloride: 7%
Base: 92%

Most heroin hydrochloride samples have concentrations greater than 50% as the base equivalent.
Most heroin base samples have concentrations lower than 5%.

The most frequently-encountered cutting agents are caffeine (95%) and paracetamol (89%), then griseofulvin (12%) followed by sugars (mannitol 6%, sucrose 6%, glucose 4% and lactose 2%)

The presence of griseofulvin was greatly increased in 2004. This anti-fungal agent could have been added to stocks of opium in order to prevent the development of certain fungi.

The IDENTA kit for heroin on the one hand and the tests NIK A, B, L and K on the other hand were tested on the different selected samples, covering the cases most frequently analysed in the laboratory (11).

According to the "multi-testing" system diagram, recommended for the NIK tests, the combinations to carry out are the following: A + B or L, and L + A. The test K was also included in this study because it was recommended for heroin, codeine and morphine.

The results of the experiments are shown in the following table:

Sample	IDENTA heroin		NIK			
	Step 1	**Step 2 (confirmation)**	**Test A**	**Test B**	**Test K**	**Test L**
Heroin HCl (71%) + caffeine, codeine, glucose	+	+	violet-purple	+ After 30 minutes	+	+
Heroin base (49%) + caffeine, paracetamol	+	+	violet-purple	–	+	+
Heroin base (6%) + caffeine, paracetamol	+	+	Chestnut brown / Later a shadow of violet-purple	–	+ First blue-green after 1-2 minute violet-	+
Heroin base (3%) + caffeine, paracetamol	+	+	–	–	+ First blue-green after 1-2 minute violet-	+
Heroin base (1%) + caffeine, paracetamol	+	+	–	–	–	–
Heroin base (traces) + caffeine, paracetamol	+	+	–	–	–	–
Caffeine, paracetamol	–	useless	–	–	–	–
griseofulvin	–	useless	yellow-orange	– pale yellow	–	–
Cocaine HCl (42%)+ lidocaine(42%)	–	useless	salmon pink	–	–	–
MDMA HCl (27%)	+	– dark violet	dark violet	– yellow	**+**	**+**
Heroin base (8%) + MDMA HCl (1%)+ caffeine, paracetamol	+	+	Chestnut brown / Later a shadow of violet-purple	– yellow-orange	**+**	**–**

IDENTA Kit

+: positive reaction (step1: red-violet color, step 2: chestnut brown color)

-: negative reaction (no color or a color different from the expected one)

NIK test

A: some colors are characteristic:

Salmon pink: cocaine
Violet-purple: heroin
Dark violet: amphetamine derivatives

B, K, L:

+: positive reaction (expected color)
-: negative reaction (no color or a color different from the expected one).

Comments on the IDENTA kits

The red-violet color of step 1 and the chestnut brown color of step 2 indicate the presence of heroin.

Case of MDMA: the presumption of the presence of heroin, indicated by the red-violet color of step 1, is confirmed by the dark violet color of step 2.

A false positive exists in step 1 with MDMA.

Heroin and MDMA (Figure caption)

The kit functions well for all tested concentrations.

The two test ampoules should be well broken in order to read the final color.

Step 1 detects the eventual presence of cocaine (green color).

Comments on the NIK tests

Test A

Heroin base 6% (Figure Caption)

The test A gives rise to a violet-purple color which develops with time, characteristic of heroin. Only samples whose heroin concentrations were equal or greater than 6% reacted. Therefore most of the seized samples would not be detected by this test.

Attention: a beige or chestnut brown powder gives a chestnut brown color when in solution in the reagent. Do not confuse with the color formed with amphetamine!

Test B

Heroin base 6% (Figure caption)

For the sample of heroin hydrochloride 71%, the test becomes positive after a long time and in an unclear way.

The colors obtained for the other samples of heroin do not correspond to the expected colors and are difficult to interprete (yellow-orange color each time).

The mixture caffeine/paracetamol gives rise to an orange color identical to the samples containing heroin. It is a very confusing false positive.

MDMA gives rise to a yellow color which may indicate heroin.

The test B is not discriminating enough. It is strongly recommended not to use it.

Test K

The violet-purple color indicates the presence of heroin (heroin base 6%).

The presence of heroin is well demonstrated by a change of color for samples having a concentration of heroin base which is equal or more than 3%. The violet color develops with time.

The color produced by the mixture caffeine/paracetamol is also violet, although slightly different than that ontained in the presence of heroin. Errors in the interpretation are therefore possible.

Test L

Heroin base 6%

Attention:

The reading of the color should be done rapidly, because the mixture later tends to acquire a violet tint.

This test functions well with samples having a concentration of heroin which is equal or more than 3%.

No false positive was observed.

Nevertheless a false negative may occur in test L in cases where heroin is mixed with MDMA (two cases in 2004).

Among the NIK tests evaluated for the detection of heroin, the tests K and L are the most suitable. One may use only them, because test A is not sensitive enough.
The color of test L is easier to interpret.
Test B should be rejected.

6 - EVALUATION OF KITS FOR AMPHETAMINE DERIVATIVES

Statisics 2004 **(STUPS ©)** Amphetamine Derivatives
MDMA (or ecstasy)
Drugs associated with MDMA
MDEA : 4 % of the files MDMA
Amphetamine: 2% of the files MDMA
MDA : 1 % of the files MDMA
Methamphetamine (or crystal, ice, yaba) : 1 % of the files MDMA

MDMA appears most often in its hydrofhloride form.

MDEA and MDA are present as impurities in MDMA tablets, being residual by-products of its synthesis.

The concentration (in equivalent base) is in the range 20 – 40%.
Lactose is the most frequently-encountered sugar in MDMA samples (73% of the files).Caffeine is encountered in 11% of the files.

In samples from 2004, concentrations of MDA are between 10 to 20% or traces.
In samples from 2004, methamphetamine appears as traces.

Substances which are sometimes being sold as MDMA

Chloroquine, anti-malarial agent, is often encountered, mainly when tablets of Nivaquine are not employed as pharmaceuticals but are sold as if they were ecstasy tablets.
Chlorpheniramine, an anti-histamine, anti-inflammatory agent, could originate from pharmaceutical preparations such as Celestamine.
Ephedrine, a bronchodilator, appears in medications such as Actifed, Rhumagrip.
It is also possible to encounter doping agents (methyltestosterone).

The IDENTA kit for MDMA/MDA on the one hand and the tests NIK A, B, L, U and I on the other hand were tested on the different selected samples covering the cases most frequently analysed in the laboratory (20).

The IDENTA kit for methamphetamine was evaluated with the same samples.

According to the "multi-testing" system diagram, recommended for the NIK tests, the combinations to carry out are the following: A + L, or B+U. The test L was also included in this study because it was recommended for "club drugs".

The results are presented in the following tables:

Sample	IDENTA MDMA/MDA		NIK				
	Step1	**Step 2**	**Test A**	**Test B – if A → orange**	**Test L**	**Test U**	**Test I**
MDMA HCl (38 %) + lactose	+	+ MDMA	dark violet	useless	+	+	yellow -green / Later dark violet
MDMA HCl (6%) + lactose, amidon	+	+ MDMA	light dark violet	useless	–	+	yellow -green / Later dark violet
MDMA HCl (2%), MDEA HCl (38%), MDA (traces) + lactose, amidon	+	–	dark violet	useless	+	+	yellow -green / Later dark violet
MDMA HCl (traces), amphetamine SO4 (8%) + lactose, amidon	–	–	orange	–	–	–	orange
Amphetamine SO4 (11%) +caffeine, lactose, sucrose, amidon	–	useless	orange	–	–	–	orange
Amphetamine SO4 (5%) +caffeine, lactose, sucrose	–	useless	orange	–	–	–	orange
MDEA HCl (pure)	+	–	dark violet	useless	+	+	yellow -green / Later dark violet
MDA HCl (pure)	+	–	dark violet	useless	+	–	yellow -green / Later dark violet
Methamphetamine HCl (22 % as base)	–	useless	orange	+	–	+	orange
Methamphetamine HCl (5% as base)	–	useless	orange	–	–	+	orange

Celestene	_	useless	uncolored	useless	_	_	uncolored
Nivaquine	_	useless	uncolored	useless	_	_	yellow
Celestamine	_	useless	uncolored	useless	_	_	uncolored
Drastin plus (aspirin, caffeine)	_	useless	pink	useless	_	_	pale yellow-green
Methltestosterone	_	useless	orange	useless	_	_	yellow
Cocaine HCl (42 %) + lidocaine	_	useless	salmon pink	useless	_	_	orange
Amidon	_	useless	uncolored	useless	_	_	Pale Yellow / later uncolored
Sugars	_	useless	pale yellow	useless	_	_	unco lored / later unco lored
Ephedrine	_	useless	yellow	useless	_	_	yellow

IDENTA Kit
+: positive reaction (step1: violet color, step 2: blue).
-: negative reaction (no color or a color different from the expected one).

NIK test
A: reading the color could be characteristic:
salmon pink: cocaine
violet-purple: heroin
dark violet: amphetamine derivatives
orange: amphetamine, methamphetamine
I: reading a color could be characteristic:
orange: amphetamine, methamphetamine

B, L, U:
+: positive reaction (expected color)
-: negative reaction (no color or a color different from the expected one).

Sample	IDENTA METAMPHETAMINE	
	Step 1	Step 2
MDMA HCl (38%)+ lactose	+	_
Amphetamine SO4 (11%) +caffeine, lactose, sucrose, amidon	_	useless
MDEA HCl (pure)	_	useless
MDA (pure)	_	useless
Methamphetamine HCl (22 % as base)	+	+
Methamphetamine HCl (10% as base)	+	+
Methamphetamine HCl (5% as base)	+	+
Nivaquine	_	useless
Celestamine	_	useless
Drastin plus (aspirin, caffeine)	_	useless
Methyltestosterone	_	useless
Cocaine HCl (42 %) + lidocaine	_	useless
Amidon	_	useless
Sugars	_	useless
Ephedrine	_	useless

IDENTA Kit

+: positive reaction (step1: blue color, step 2: orange color)

-: negative reaction (no color or a color different from the expected one)

Comments on the IDENTA kits

MDMA: step 1 and 2

MDA: step 1 and 2

Differentiation between MDMA and MDA by step2.

Step 1 gives a violet color which develops with time with MDMA, MDA but also with MDEA.

This color reaction is sensitive but - the lower the concentration of MDMA - the more time it takes for the violet color to appear. **Thus it is important to wait for at least three minutes, as indicated in the instructions.**

Step 2 is effective: MDMA is well differentiated. But at this level, MDA and MDMA react in an identical manner.

MDMA HCl 6% is detected. 96% of the samples seized in 2004 have content above 10%: the kit is suitable for their detection.

No false positive for MDMA was observed.

Step 2 (differentiation between MDMA and MDA) is unnecessary: in 2004, MDEA and MDA are in trace amounts in the samples.

Comments on the IDENTA METHAMPHETAMINE Kit

Metamphetamine: Step 1 and 2.

The metamphetamine is detected in all the concentrations tested: the test is positive for samples with concentration of 5%.

No false positive was observed.

It should be noted that MDMA gives a positive result in step 1. Step 2 allows differentiating it from metamphetamine.

Comments on the NIK tests

Test A

Dark violet color for MDMA, MDEA and MDA.

Orange color changing into rusty brown for amphetamine and methamphetamine

Amphetamine and its derivatives are well detected with clear colors but false positives could exist. Therefore it is necessary to perform experiments with other NIK tests.

MDMA, MDEA and MDA give a characteristic dark violet color.

Amphetamine and methamphetamine lead to orange color changing into rusty brown.

Test B

If an orange color is developed in test A, it is indicated in the "multi-testing system" diagram to carry out test B.

This test gives, as expected, a negative response for amphetamine.

It gives a light yellow color with the sample of methamphetamine 22%; it does not detect a sample whose content is 5%. The color is very weakly observed, which can lead to possible problems in interpretation.

Test L

Violet color for MDMA, MDEA and MDA

This test gives a positive response for MDMA, MDEA and MDA without differentiating between the three.

Samples with MDMA concentration of 6% are not detected (4% of the files have MDMA content of less than 10%).

Test U

Intense violet-blue color for MDMA, MDEA and methamphetamine

Remark:
The color may be confounded with the color of the reagents mixture (without a sample).

This test gives a positive response for MDMA, MDEA and MDA without differentiating between the three.

Samples with 6% content of MDMA and 5% content of methamphetamine are detected: this test shows good sensitivity.

96% of the samples seized in 2004 have concentrations above 10%: thus test U is suitable for their detection.

Test I

Test I was also evaluated. It reacts with amphetamine and its derivatives. A color appears with other relevant substances (nivaquine, drastin plus, methyltestosterone, cocaine, amidon, sugars).

This test allows a general screening which is similar to test A. Its use within the performed experiments does not add an extra value. **Therefore it should be rejected.**

Among the NIK tests, tests L and U are more suitable for the detection of MDMA and MDEA. Test L permits the detection of MDA and test U the detection of methamphetamine. These last two compounds appear very rarely, often as traces. Therefore they should not be considered when choosing the tests.

Test U is more sensitive than test L: it should therefore be preferred.

A general screening may be carried out by test A, whose sensitivity is equivalent to test U. Tests L and U do not give any false positive, and so test A uniquely allows a differentiation between MDMA/MDEA/MDA and methamphetamine.

The combination A+U should be preferred to the combination A+L or A+B.

<u>Recommended Protocol</u>

Perform tests A and U.

If A orange and U positive: presence of amphetamine

If A dark violet and U positive: presence of MDMA and/or MDEA

If A dark violet and U negative: presence of MDA

7 - EVALUATION OF KITS FOR HASHISH

Statisics 2004 (STUPS ©) Cannabis

In France the seized cannabis is mainly in its resin form.

The content of the active compound, Δ^9-tetrahydrocannabinol (THC) is 8-10%.

The THC content in herbal preparations is variable, depending on the nature of the plant preparations. In normal plant preparations it does not exceed 2% but in best-quality ("professional") samples it is very variable, usually above 4%.

The IDENTA kit for Marijuana/Hashish on the one hand and the test NIK E on the other hand were evaluated.

The results are presented in the following table:

SAMPLE	IDENTA	NIK TEST E
Resin 8%	+	+
Resin 1%	+	+
Herbal preparation 1% THC	+	+
Hashish oil 16% THC	+	+
Heroin base (6%) + caffeine + paracetamol	–	–

Kit IDENTA

Test E

Resin 8 and 1%, Herbal preparation 1%

Comments

For each of the two tests, the protocol includes successive breaking of the three ampoules of the reagents. The breaking of the last ampoule has to cause the creation of two phases of different colors (see the instructions for use). This stage is not visible for the more concentrated (8%) samples.

The two tests give the expected responses for all selected products. They are suitable for the seized samples.

8 – SUMMARY OF THE RESULTS

COCAINE

Test	Sensitivity	False Positives	Price (before taxes) (€)
NIK G (+F*)	+ For all concentrations tested (≥4%)	3 (lidocaine, subutex, concentrated heroin HCl)	2.70 (+1.20 = 3.90)
IDENTA Step 1	+ For all concentrations tested (≥4%)	4 (lidocaine, subutex, concentrated heroin HCl,	2.99
IDENTA Step 1+2	+ For all concentrations tested (≥4%)	None	5.98

***: Test F: Agent for neutralization (price before taxes: 1,20 €).**

IDENTA KIT

Step 2 is carried out only after a positive response in step1.

The differentiation between crack (cocaine base) and cocaine hydrocnloride and the elimination of false positives exist only in the IDENTA kit.

HEROIN

Test	Sensitivity	False Positives	Price (before taxes) (€)
NIK L (+F*)	**+** For heroin base content equal or superior to 3%	none	2.70 (+1.20 = 3.90)
IDENTA Step 1	+ For all concentrations	1 MDMA	2.99
IDENTA Step 1+2	+ For all concentrations	None	5.98

***: Test F: Agent for neutralization (price before taxes:** 1,20 €).

The IDENTA kit is more sensitive than the NIK tests: all seized samples of heroin, whatever their concentration, are detected. **35% of the heroin-base samples analysed in 2004 had heroin content of less than 5%.**

Samples of heroin containing traces of MDMA pose a problem for test L: false negative.

AMPHETAMINE DERIVATIVES

Test	Sensitivity	False Positives	Price (before taxes) (€)
NIK A+U (+2F*)	**+** For MDMA content ≥6% and methamphetamine content ≥5%	none	4.45 (+2.40 = 6.85)
NIK U (+F*)	**+** For MDMA content ≥6% and methamphetamine content ≥5%	none	2.70 (+1.20 = 3.90)
IDENTA MDMA Step 1	**+** For MDMA content ≥6%	none	2.99
IDENTA MDMA Step 1+2	**+** For MDMA content ≥6%	None	5.98
IDENTA METHAMPHETAMINE Step 1	+ For methamphetamine content ≥5%	None	2.99
IDENTA METHAMPHETAMINE Step 1 and 2	+ For methamphetamine content ≥5%	None	5.98

***: Test F: Agent for neutralization (price before taxes:** 1,20 €).

Step 1 of the IDENTA MDMA kit allows the detection of MDMA and MDA without differentiation.

Actually, MDA is rarely present in samples and then as traces only. Therefore step 2 is unnecessary.

The IDENTA METHAMPHETAMINE kit (step 1 and 2) allows the detection of methamphetamine.

The NIK U test is equivalent to step 1 of the IDENTA METHAMPHETAMINE kit: detection without differentiation of MDMA and methamphetamine.

The combination of NIK tests A + U allows the presumptive detection and the differentiation of four amphetamine derivatives (MDMA, MDA, methamphetamine and amphetamine):

Test A	Test U	Presumptive presence
dark violet	+	MDMA
dark violet	-	MDA
orange	+	Methamphetamine
orange	-	Amphetamine

This protocol is additional to the one recommended in the "multi-testing" diagram.

CANNABIS

The test NIK E and the IDENTA kit are both effective.

Price of test E (+F): 2.70 € (+1.20 = 3.90)
Price of IDENTA kit: 2.99 €.

For information

The tests Nik are sold in packages of 10.
The prices of the IDENTA kits shown in the tables are the price of one unit for packages of 10 to 1000.

9 – CONCLUSION

Presumed drug	Preferred kit	Remarks
Cocaine	**IDENTA cocaine/crack Step 1 and 2**	No false positives when using step 1 + 2 Differentiation crack/cocaine Step 2: allows an indication for the presence of heroin
Heroin	**IDENTA heroin Step 1 and 2**	better sensitivity Step1: allows an indication for the presence of cocaine
Cannabis	**NIK E or IDENTA Marijuana/hashish**	choice of the service user

The choice of tests for the detection of synthetic drugs is more varied because there are many more molecules to cover.

Nevertheless, the 2004 statistic, from the STUPS data base, indicates that **MDMA (ecstasy) is encountered in 85% of the files concerning seizures of synthetic drugs** (**MDA** is encountered in 1% of the files).

The different possibilities are presented in the following table, leaving the choice to the service user.

	Kit	Remarks
Synthetic drugs (ecstasy, ice etc.)	IDENTA MDMA step 1	Detects MDMA, MDA Step 2 is not useful
	NIK U	Detects: MDMA, methamphetamine

The combination of tests NIK A and NIK U is the best practical solution for differentiating between the four symthetic drugs (MDMA / MDA / methamphetamine / amphetamine). But it is very expensive.

The kit IDENTA METHAMPHETAMINE is suitable for the detection of this product. It is a specific test. But according to the 2004 statistic, the methamphetamine (ice) was encountered only in traces and only in three files.

The IDENTA AMPHETAMINE kit was not available; it was not tested (amphetamine was found in 13% of the files in 2004).

TECHNICAL ASPECT

It should be noted that the IDENTA kits require smaller sample amounts for the test.

Verify carefully the presence of material on the conical sampler device before replacing the sampler of the IDENTA kit.

The packaging of the IDENTA kits is on the other hand weaker. Once the sampler is replaced in the kit, there is very little risk that the reaction mixture will "run away"; the ensemble is fixed.

Follow carefully the indicated protocol in the instructions of use for the tests or the kits.

Translated from French by Dr. Shmuel Zitrin, 25.07.2006
Rehovot, Israel