

Novichok agent rumoured to be behind the attempted murder of two Russian citizens in the UK. But where the Main Stream Media (MSM) has instantly jumped on the coat tails of the government, I'm looking at something a bit different.

So, let's look at the usual man/woman/transgender/ whatever type of person in the street. You're walking in town on a normal day, and see a couple of people sitting on a park bench looking dazed and confused. Majority of us instantly think they're drunk, or sometimes wacked out on drugs. It's not evil to say this; it's just what human perception is. What we don't do is go 'look, two people dazed, it must be a nerve agent, even though I have no idea where they were born etc., lets test it out at the nearest chemical testing facility'.

So, within 24 hours, they narrowed it down (probably using testing scans produced from many types of weapons), and said it was Russia. Even though the 'experts' are now involved, taking samples away and may take a few weeks to test it. Smell fishier than Grimsby docks?

Anyhow, let's look at this Novichok in detail. Let's ignore Wikipedia, as I hate when people base all research on it, when it's not a real encyclopaedia, and even now says it was Russia, even though no-one (including the Russians) have seen any evidence.

So, with this in mind, where is it produced? Well, according to MSM, no-where except Russia:

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<https://www.theguardian.com/world/2018/mar/14/nerve-agent-novichok-produced-russia-site-expert>

Bretton-Gordon said: "The OPCW must get to Salisbury as soon as possible for an independent investigation and then go to Russia to visit the site. If they [Russia] have nothing to hide, why would they veto it? It would be an admission of guilt. I think Putin has made his first big mistake in a long time."

Shikhany is the Russian equivalent of the UK's Porton Down, home to various military research facilities that specialise in radiation, chemical and other weaponry.

Bretton-Gordon, a former commander of the now disbanded UK Chemical, Biological, Radiation and Nuclear regiment and its Nato equivalent, said Shikhany was the sole location for development and production of novichok, dismissing suggestions that the chemical could be found in other places in the former Soviet Union such as Ukraine and Uzbekistan. "They have no more anywhere else," he said.

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And this is in Wikipedia:

[https://en.wikipedia.org/wiki/Novichok\\_agent](https://en.wikipedia.org/wiki/Novichok_agent)

Posted in parts due to the size etc.:

### Development and test sites

Stephanie Fitzpatrick, an American geopolitical consultant, has claimed that the Chemical Research Institute in Nukus, Soviet Uzbekistan,<sup>[34]</sup> testing site for Novichok agents.<sup>[35][36]</sup> Small, experimental batches of the weapons may have been tested on the nearby Ustyurt plateau.<sup>[36]</sup> Chemicals were made at the Pavlodar Chemical Plant in Soviet Kazakhstan, which was also thought to be the intended Novichok weapons production site for the forthcoming 1990 Chemical Weapons Accord and the Chemical Weapons Convention.<sup>[37][38]</sup>

Since its independence in 1991, Uzbekistan has been working with the government of the United States to dismantle and decontaminate the site. The United States Department of Defense dismantled the major research and testing site for Novichok at the Chemical Research Institute in Nukus. Hamish de Bretton-Gordon, a British chemical weapons expert and former commanding officer of the UK's Joint Chemical, Biological, Radiological and Nuclear Regiment, visited the site in 2002 and has asserted that Novichok agents were produced only at Shikhany in Saratov Oblast, Russia. Vladimir Uglev joined him on the project in 1975.<sup>[42]</sup> According to Mirzayanov, while production took place in Shikhany, the weapon was tested at Nukus between 1986 and 1989.<sup>[4]</sup> Following the poisoning of the Skripals, former head of the GosNIIOKhT security department Nikolay Volodin confirmed in an interview to *Novaya Gazeta* that there have been tests at Nukus, and said that dogs were used.<sup>[43]</sup>

<sup>[34]</sup> produced Novichok agents and *The New York Times* has reported that U.S. officials said the site was the major research and testing site for Novichok agents.<sup>[35][36]</sup> Fitzpatrick also writes that the agents may have been tested in a research centre in Krasnoarmeysk near Moscow.<sup>[34]</sup> Precursor to the current production site, until its still-under-construction chemical warfare agent production building was demolished in 1987 in view of the

the sites where the Novichok agents and other chemical weapons were tested and developed.<sup>[34][36]</sup> Between 1999<sup>[39]</sup> and 2002 in Nukus, under a \$6 million Cooperative Threat Reduction program.<sup>[35][40]</sup>

ation and Nuclear Regiment and its NATO equivalent, "dismissed" suggestions that Novichok agents could be found in other Oblast, Russia.<sup>[41]</sup> Mirzayanov also says that it was at Shikhany, in 1973, that scientist Pyotr Petrovich Kirpichev first produced the weapon was tested at Nukus between 1986 and 1989.<sup>[4]</sup>

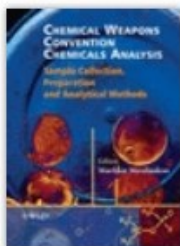
*Novaya Gazeta* that there have been tests at Nukus, and said that dogs were used.<sup>[43]</sup>

So, that states only Russia but there is this part:

In 2016, Iranian chemists synthesised five Novichok agents for analysis and produced detailed mass spectral data which was added to the Organisation for the Prohibition of Chemical Weapons Central Analytical Database.<sup>[12][13]</sup> Previously there had been no detailed descriptions of their spectral properties in open scientific literature.<sup>[12][14]</sup>

ata which was added to the Organisation for the Prohibition of Chemical Weapons Central Analytical Database.<sup>[12][14]</sup>

So, Iran managed to synthesize some. Let's hypothesise and assume that Iran created the spectra, and that is what Porton Down used. This is the book:



# Chemical Weapons Convention Chemicals Analysis: Sample Collection, Preparation and Analytical Methods

Editors(s): Dr. Markku Mesilaakso

First published: 27 February 2006

Print ISBN: 9780470847565 | Online ISBN: 9780470012284 | DOI: 10.1002/0470012285

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HOME

REVIEWS

## About this book

Describes the procedures for collection of samples, sample preparation, and analysis of CWC-related chemicals. It deals with analytical procedures that can be followed in well-equipped off-site laboratories (designated laboratories), as well as the on-site analytical procedures that the OPCW inspectors use in sample collection and preliminary analysis of the samples in field conditions.

- A one-of-a-kind, highly topical handbook for every expert in the chemical weapons field
- Outlines the methods for analysing chemical weapons both on and off site
- Authored by international experts in the field from top laboratories in both government and academic institutions

... Show less ^

This will be the reference book for any chemical weapons used in the wild. This is fine, as many chemists etc. around the world using reference books of spectra to help their analysis.

And this is the link to view the majority of the book without buying it, available on Google:

[https://books.google.co.uk/books?id=IQt\\_NSDBe9MC&pg=PA193&lpg=PA193&dq=%22The+OPCW+Central+Analytical+Database%22+index&source=bl&ots=qmHgie2qCZ&sig=3J-O1cw8C1Ov3L-xaGA6XrEr-hk&hl=en&sa=X&ved=0ahUKEwjV-4HWvZzaAhWPzKQKHbCeB9YQ6AEIVDAH#v=onepage&q=%22The%20OPCW%20Central%20Analytical%20Database%22%20index&f=false](https://books.google.co.uk/books?id=IQt_NSDBe9MC&pg=PA193&lpg=PA193&dq=%22The+OPCW+Central+Analytical+Database%22+index&source=bl&ots=qmHgie2qCZ&sig=3J-O1cw8C1Ov3L-xaGA6XrEr-hk&hl=en&sa=X&ved=0ahUKEwjV-4HWvZzaAhWPzKQKHbCeB9YQ6AEIVDAH#v=onepage&q=%22The%20OPCW%20Central%20Analytical%20Database%22%20index&f=false)

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So, onto the main part of this research: where else can this be from/stored etc., as the UK government will say that they used spectra from the book to 'match' the agent used, hence the reason for saying it was Russia.




So, looking online doesn't bring much up, but I stumbled across a video that was talking about Novichok, and so I looked up the article it refers to:

<https://patents.google.com/patent/US20170128761A1/en>

Now, in this patent the application was sent through in 2017 (more on that date later on):

## US20170128761A1

US Application

 Download PDF  Find Prior Art  Similar

**Inventor:** [Joseph T. Hupp](#), [Omar K. Farha](#), [Michael J. Katz](#), [Joseph E. Mondloch](#)

**Current Assignee :** [Northwestern University](#)

**Original Assignee:** [Northwestern University](#)

**Priority date :** [2013-12-31](#)

**Family:** [US \(1\)](#)

Date	App/Pub Number	Status
2017-01-23	US15412412	Pending
2017-05-11	US20170128761A1	Application

**Info:** [Similar documents](#), [Priority and Related Applications](#)

**External links:** [USPTO](#), [USPTO Assignment](#), [Espacenet](#), [Global Dossier](#), [Discuss](#)

(And I'll be attaching the pdf and screenshotting the whole thing, in case it 'disappears', on a separate document)

So, what is this, I hear you ask? Well, Northwestern University in the US was testing different nerve agents, to see if they can decompose the nerve agent, which in turn makes it less harmful. And here is a table of nerve agents they tested:

TABLE 1

Nerve Agents

Hydrogen cyanide	Ethyl-dichloroarsine (ED)	Methyldichloroarsine (MD)	Phenyldichloroarsine (PD)
Sulfur Mustard (HD, H, HT, HL, HQ)	Nitrogen mustard (NH1, NH2, NH3)	Tabun (GA)	Sarin (GB)
Cyclosarin (GF)	GV	EA-3148	Methyl fluorophosphoryl homocholine iodid (MFPhCh)
VG	VM	VP	VR
Novichok agents	Phosphine oxime (CX)	Chlorine	Chloropicrin (PS)
Diphosgene (DP)	Disulfur decafluoride	Agent 15 (BZ)	Dimethylheptylpyran (DMHP)
Kolokol-1	LSD-25	PAVA spray	Pepper spray (OC)
Mace ® (CN)	CR		

And look what this there – Novichok agents. This is the basic abstract:

“A method of using a metal organic framework (MOF) comprising a metal ion and an at least bidentate organic ligand to catalytically detoxify chemical warfare nerve agents including exposing the metal-organic-framework (MOF) to the chemical warfare nerve agent and catalytically decomposing the nerve agent with the MOF.”

So, let's have a look at each part in its entirety.

## RELATED APPLICATIONS

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 14/585,718, filed Dec. 30, 2014, which claims the benefit of U.S. Provisional Application No. 61/922,370, filed Dec. 31, 2013, hereby incorporated by reference in their entirety.

## STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

So, looking at this first part, it's a continual research of a previous patent.

[0002] This invention was made with government support under HDTRA1-10-1-0023 awarded by the Defense Threat Reduction Agency and DE-AC05-06OR23100 (SubK No. 10-20903 DOE Oak Ridge, Tenn.) awarded by the Department of Energy. The government has certain rights in the invention.

## FIELD

So, it's partly government research, and the Department of Energy. Why energy if it's a nerve agent?

Now, this may all be circumstantial. They may have tested 'some nerve agents' and then explained that it can be used on Novichok and others, for example.

Looking into this further, and what a video article posted, it seems that they didn't use particular types of nerve agents, as can be seen here:

[0022] Considering the incredibly high toxicity of nerve agents, experiments were conducted using less toxic simulants, including methyl paraoxon (dimethyl 4-nitrophenyl phosphate) and p-nitrophenyl diphenyl phosphate. The rate of degradation was observed using UV-vis spectroscopy by following the formation of UV/blue-adsorbing byproducts. In an example, the hydrolysis was carried out in the presence of 6 mol % UiO-66 in an aqueous solution containing 0.45 M N-ethylmorpholine (as a buffer at pH=10). FIG. 4a illustrates detoxification profiles for the UiO-66 catalyzed hydrolysis of methyl paraoxon at 298K (squares) and 333K (circles) as a function of time. The detoxification profiles show half-lives of 45 and 10 minutes, at 298 K and 333K, respectively. Additionally, as shown in FIG. 4 a, the background detoxification reaction, i.e. hydrolysis in the absence of the MOF catalyst, is significantly slower and shows the detoxification plateauing at 5% and 12% at 298K (squares) and 333K (circles) respectively.

So, its possibly showing that using some highly toxic simulants, that have the same type of properties as nerve agents, to show the breakdown using MOF. So, from this I can conclude that Northwestern University have never used Novichok in their analysis. But like I say, if you just go off

what someone else says as gospel, then we may as well all be sheep. Researching isn't something I/we can do for everything that is in the news, but if you're curious, have a go 😊

Still on the topic, I delved into the world of MOF's, and had a look to see what I could find. But then some new news appeared, as follows.

<http://www.bbc.co.uk/news/uk-43633694>

## Russian spy: Source of nerve agent 'not identified'

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Russian spy poisoning



**The precise source of the nerve agent used to poison a Russian ex-spy and his daughter has not been verified, says the head of Porton Down laboratory.**

The defence research facility, which identified the substance in Salisbury as Novichok, said it was likely to have been deployed by a "state actor".

The UK said further intelligence led to its belief that Russia was responsible.

Russia's president has said he hopes a line can be drawn when the chemical weapons watchdog meets on Wednesday.

Expressing surprise at the "pace" of what he described as an "anti-Russia campaign", Vladimir Putin added that Russia wants to be part of the investigation and hopes "a line can be drawn under" the incident.

Porton Down's chief executive Gary Aitkenhead dismissed Russian claims it might have come from the UK military laboratory.

"We have not identified the precise source, but we have provided the scientific info to [the] government who have then used a number of other sources to piece together the conclusions," Mr Aitkenhead said.

"It is our job to provide the scientific evidence of what this particular nerve agent is - we identified that it is from this particular family and that it is a military grade, but it is not our job to say where it was manufactured."

A UK government spokesperson said that identifying the substance at Porton Down was "only one part of the intelligence picture".

It maintained Russia was responsible, adding there was "no other plausible explanation".



Sergei Skripal and his daughter Yulia were attacked with the nerve agent on 4 March.

The BBC understands Miss Skripal, 33, is now conscious and talking. Salisbury District Hospital has said her father, 66, remained critically ill but stable.

Mr Aitkenhead said he had been advising those treating the Skripals.

"Unfortunately this is an extremely toxic substance. There is not, as far as we know, any antidote that you can use to negate the effects of it," he added.

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## Analysis

**By Frank Gardner, BBC security correspondent**

The man who runs the government's Defence Science and Technology Laboratory at Porton Down chose his words carefully today.

Speaking strictly as a scientist, Gary Aitkenhead said that his staff had not yet verified that the nerve agent used to poison the Skripals had come from Russia.

It was not his scientists' role, he said, to work out the source of the poison, implying that the government had reached the conclusion that Russia was to blame from other sources - notably secret intelligence.

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His comments come a day before an extraordinary meeting - called by Russia - with the world's chemical weapons watchdog, the executive council of the Organisation for the Prohibition of Chemical Weapons (OPCW).

## 'The whole truth'

"We hope to discuss the whole matter and call on Britain to provide every possible element of evidence they might have in their hands," said the Russian ambassador to Ireland, Yury Filatov.

"Russia is interested in establishing the whole truth of the matter and we hope certainly that this meeting will help to return to at least the realm of normality within the realm of international law and...decency in international relations."

A Foreign Office spokesman called the meeting a "diversionary tactic, intended to undermine the work of the OPCW in reaching a conclusion".

"There is no requirement in the chemical weapons convention for the victim of a chemical weapons attack to engage in a joint investigation with the likely perpetrator," he added.



The Skripals were found on a bench in Salisbury

So far 29 nations have expelled diplomats over the poisoning, which the British government holds Russia responsible for.

Russia has now told the UK that **more than 50 of its diplomats have to leave** the country.

In a news conference on Monday, Russian Foreign Minister Sergei Lavrov suggested the poisoning could be "in the interests of the British government" because of the "uncomfortable situation" they had found themselves in with Brexit.

"There could be a whole number of reasons and none of them can be ruled out," **Mr Lavrov said.**

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So, even the head of the research at Porton Down hasn't said its Russian, but said this:

"We have not identified the precise source, but we have provided the scientific info to [the] government who have then used a number of other sources to piece together the conclusions," Mr Aitkenhead said.

"It is our job to provide the scientific evidence of what this particular nerve agent is - we identified that it is from this particular family and that it is a military grade, but it is not our job to say where it was manufactured."

So, that is definitely interesting news.

So, onto Iran:

The links that Wikipedia cited from are:

<http://www.spectroscopynow.com/details/ezone/1591ca249b2/Iranian-chemists-identify-Russian-chemical-warfare-agents.html?tzcheck=1>

<https://onlinelibrary.wiley.com/doi/abs/10.1002/rcm.7757>

[https://www.opcw.org/fileadmin/OPCW/CSP/RC-3/en/rc3wp01\\_e\\_.pdf](https://www.opcw.org/fileadmin/OPCW/CSP/RC-3/en/rc3wp01_e_.pdf)

So, let's look at the first one, again, screenshots here for full clarity:

### Chemical weapons' detection requires good analytical data

Chemical weapons, and their precursors, were banned by the Chemical Weapons Convention, which has been signed and ratified by nearly all the countries in the world. However, the illegal use of chemical weapons, whether by state agencies or terrorist organisations, remains a threat. Chemical weapons were used by Iraqi forces in the 1980s against Iranian forces and Kurdish civilians. Some chemical weapons, such as chlorine gas, are believed to have been used in recent years in the Syrian civil war.

Current databases include mass spectra of the more common chemical warfare agents; however, more work needs to be carried out on rarer agents. The so-called 'Novichok' agents are a range of highly toxic nerve agents developed in the Soviet Union in the 1970s and 1980s. The literature on their spectral properties is sparse.

The detection of chemical weapons may involve samples in which they are present at extremely low levels. Mass spectrometry is generally used for identification, typically GC/MS or LC/MS. Even with these techniques, identification may be difficult in situations where the molecular ion is weak or isomeric compounds could be present. It is important to recognise typical fragmentation pathways in order to reliably identify the compounds.

### GC/MS and LC-MS/MS used for 'Novichok' agent detection

The Iranian researchers synthesised five 'Novichok' agents, along with four deuterated analogues. They were all *O*-alkyl *N*-[bis(dimethylamino)methylidene]-*P*-methylphosphoramidate compounds (i.e. molecules with the typical nerve agent phosphorus group coupled to *N,N,N,N*-tetramethylguanidine). The *O*-alkyl group was varied, with the methoxy, ethoxy, isopropoxy, phenoxy, and 2,6-dimethylphenoxy derivatives being prepared. The syntheses were carried out on a micro-scale in order to minimize exposure.

The synthesised nerve agents were examined using GC/MS, using a 40–280°C GC ramp, an electron ionisation (EI) source and a mass selective detector (MSD). The compounds all showed a good to moderate molecular ion. The other main ions were identified with the help of the mass spectra from the deuterated analogues. The fragmentation was mostly as might be expected; for example, for the methoxy analogue the base peak involved loss of a dimethylamino group and the phosphorus methyl group. For the phenoxy compound, the base peak was that from the loss of a dimethylamino group; the authors propose an intramolecular reaction involving attack from the ortho position of the phenoxy group on the central 'guanidine' carbon, leading to the loss of the dimethylamino group and formation of a stable sigma complex. Some evidence for this mechanism is provided by the spectrum of the 2,6-dimethylphenoxy derivative, where the corresponding peak is far weaker, presumably because the ortho positions are blocked by the methyl groups. A distinctive McLafferty-type rearrangement, with the loss of an alkene from the alkoxy group, was seen with derivatives where this was possible, such as ethoxy and isopropoxy, but not in methoxy and phenoxy derivatives, where such a rearrangement could not occur.

The compounds were examined by LC-MS/MS, using an electrospray ionisation (ESI) source and a quadrupole tandem mass spectrometer. The HPLC used an aqueous acetonitrile gradient system, with 20 mM formic acid. In general the ESI spectra were similar to the EI spectra. The facile loss of a dimethylamino group with the phenoxy derivative was again noted.

### New additions to chemical weapons database

The authors succeeded in synthesising and obtaining detailed mass spectral data on a series of unusual nerve agents. The data have been added to the Organisation for the Prohibition of Chemical Weapons' Central Analytical Database (OCAD). It is important that such databases are as comprehensive as possible so that unusual chemical weapons can be unambiguously detected. The task of ridding the world of all chemical weapons requires a great deal of painstaking work, but the ultimate goal is surely something of which we should all approve.



So, the main part to look at:

“The Iranian researchers synthesised five ‘Novichok’ agents, along with four deuterated analogues. They were all *O*-alkyl *N*-[bis(dimethylamino)methylidene]-*P*-methylphosphoramidate compounds (i.e. molecules with the typical nerve agent phosphorus group coupled to *N,N,N,N'*-tetramethylguanidine). The *O*-alkyl group was varied, with the methoxy, ethoxy, isopropoxy, phenoxy, and 2,6-dimethylphenoxy derivatives being prepared. The syntheses were carried out on a micro-scale in order to minimize exposure.”

So, this explains the actual chemical structure of what was synthesised. There is more under it explaining how they were examined etc., and yes, the spectra was added to the database (book) of which I explained earlier, is what Porton Down probably used.

However, who were the Iranians? Why Iran, and not Porton Down or any well know institution? Was it regulated? Were the OPCW on hand to see the disposal of it, and if so, where is the documentation? Also, when were these synthesised? The reason I ask, is that the article was written in January 2017, and work in the US was possibly carried out in January 2017 (No need to look at this area with regards to Northwestern as explained earlier).

These are the hidden parts that need to be researched, as well as the initial testing in the US.

Now, I have found the names of the Iranians.

In the second link:

<https://onlinelibrary.wiley.com/doi/abs/10.1002/rcm.7757>

There are a few documents to look at (Supporting Information) in the article. The first (rcm7757-sup-0001-si.doc) has the names and just spectra:

Seyed Esmaeil Hosseini<sup>1,2</sup>, Hamid Saeidian<sup>3\*</sup>, Ali Amozadeh<sup>1</sup>, Mohammad Taghi Naseri<sup>2</sup> and Mehran Babri<sup>2</sup>

<sup>1</sup>Department of Chemistry, Semnan University, P.O. Box 35131-19111, Semnan, Iran

<sup>2</sup>Defense Chemical Research Lab (DCRL), P.O. Box 31585-1461, Karaj, Iran

<sup>3</sup>Department of Science, Payame Noor University (PNU), P.O. Box 19395-4697, Tehran, Iran

\*Correspondence to: H. Saeidian, Department of Science, Payame Noor University (PNU), P.O. Box

The second is exactly the same, give or take, but the third seems to have the synthesise technique, but I'm not a full blown chemist:

rcm7757-sup-0003-f1-f5\_s1-s6.docx

Which is interesting, as the government has said this isn't available, and I found it on a website from Google, that is 100% legit?

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So, let's have a look at the Iranians. Bear in mind, these all may be totally innocent; I'm not going to judge research etc., as without it, most of what we're safe from, we wouldn't have been without it.

The first up is:

Seyed Esmaeil Hosseini - From Department of Chemistry, Semnan University, and Defense Chemical Research Lab (DCRL), Karaj, Iran

Looking here, we can see some research he's been looking at, and it seems that his chosen field is nerve agents:

[https://www.researchgate.net/profile/Ali\\_Amoozadeh](https://www.researchgate.net/profile/Ali_Amoozadeh)

And ironically, twist of fate, not sure, I found one of his research articles, and the other 4 on the project are the same as the ones that looked at Novichok, and the same labs. It's a lengthy paper, so this is just a short summary:

[https://www.researchgate.net/publication/321054745\\_Investigation\\_of\\_sarinSe\\_reactivity\\_against\\_human\\_plasma\\_proteins\\_using\\_liquid\\_chromatography-tandem\\_mass\\_spectrometry](https://www.researchgate.net/publication/321054745_Investigation_of_sarinSe_reactivity_against_human_plasma_proteins_using_liquid_chromatography-tandem_mass_spectrometry)

## Investigation of sarin(Se) reactivity against human plasma proteins using liquid chromatography-tandem mass spectrometry

Article (PDF Available) in *Journal of Mass Spectrometry* 53(2) · November 2017 with 29 Reads

[Cite this publication](#)

DOI: 10.1002/jms.4045



Hamid Saeidian



Seyed Esmaeil Hosseini



Ali Amoozadeh  
iD 30.76 · Semnan University



Mohammad Naseri  
iD 17.66 · Tarbiat Modares University



Mehran Babri

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### Abstract

Electron ionization mass spectrum of sarin(Se) was interpreted in compare of sarin MS spectrum. Inhibition of butyrylcholinesterase (BuChE) of human plasma by sarin and sarin(Se) was determined spectrophotometrically using modified Ellman's method. It appeared that after incubation with sarin and sarin(Se), cholinesterase inhibition were 93% and 83%, respectively. Sarin, sarin(Se) and sarin(Se)-d7 were spiked into a vial containing human plasma and albumin adduct metabolites were identified using liquid chromatography-tandem mass spectrometry LC-MS/MS. The experiments show that these agents are attached to tyrosine on albumin in human blood. Corresponding deuterated adducts were used to confirm the proposed mechanisms for the formation of the fragments in mass spectrometry experiments.

And he only has 3 publications apparently:

[https://www.researchgate.net/scientific-contributions/2116427441\\_Seyed\\_Esmaeil\\_Hosseini](https://www.researchgate.net/scientific-contributions/2116427441_Seyed_Esmaeil_Hosseini)

But this is the main one in question:






[https://www.researchgate.net/publication/309093991\\_Fragmentation\\_pathways\\_and\\_structural\\_characterization\\_of\\_organophosphorus\\_compounds\\_related\\_to\\_CWC\\_by\\_electron\\_ionization\\_and\\_electrospray\\_ionization\\_tandem\\_mass\\_spectrometry\\_Mass\\_spectral\\_studies\\_of](https://www.researchgate.net/publication/309093991_Fragmentation_pathways_and_structural_characterization_of_organophosphorus_compounds_related_to_CWC_by_electron_ionization_and_electrospray_ionization_tandem_mass_spectrometry_Mass_spectral_studies_of)

Doesn't speak much in the title, but the summary:

Fragmentation pathways and structural characterization of organophosphorus compounds related to CWC by electron ionization and electrospray ionization tandem mass spectrometry: Mass spectral studies of organophosphorus compounds related to CWC

Article (PDF Available) in *Rapid Communications in Mass Spectrometry*  
30(24) · October 2016 with 1,551 Reads  
DOI: 10.1002/rcm.7757

[Cite this publication](#)

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 <b>Ali Amoozadeh</b> iD 30.76 · Semnan University	 <b>Mohammad Naseri</b> iD 17.66 · Tarbiat Modares University
 <b>Mehran Babri</b>	

[Hide](#)

#### Abstract

**Rationale:** For unambiguous identification of Chemical Weapons Convention (CWC)-related chemicals in environmental samples, the availability of mass spectra, interpretation skills and rapid microsynthesis of suspected chemicals are essential requirements. For the first time, the electron ionization single quadrupole and electrospray ionization tandem mass spectra of a series of O-alkyl N-[bis(dimethylamino)methylidene]-P-methylphosphonamidates (Scheme 1, cpd 4) were studied for CWC verification purposes. **Methods:** O-Alkyl N-[bis(dimethylamino)methylidene]-P-methylphosphonamidates were prepared through a microsynthetic method and were analyzed using electron ionization and electrospray ionization mass spectrometry with gas and liquid chromatography, respectively, as MS-inlet systems. General EI and ESI fragmentation pathways were proposed and discussed, and collision-induced dissociation studies of the protonated derivatives of these compounds were performed to confirm proposed fragment ion structures by analyzing mass spectra of deuterated analogs. **Results:** Mass spectrometric studies revealed some interesting fragmentation pathways during the ionization process, such as McLafferty rearrangement, hydrogen rearrangement and a previously unknown intramolecular electrophilic aromatic substitution reaction. **Conclusions:** The EI and ESI fragmentation routes of the synthesized compounds 4 were investigated with the aim of detecting and identifying CWC-related chemicals during on-site inspection and/or off-site analysis and toxic chemical destruction monitoring. Copyright © 2016 John Wiley & Sons, Ltd.

In case it's too small to read, it's this part:

“O-alkyl N-[bis(dimethylamino)methylidene]-P-methylphosphonamidates (Scheme 1, cpd 4) were studied for CWC verification purposes. Methods: O-Alkyl N-[bis(dimethylamino)methylidene]-P-methylphosphonamidates were prepared through a microsynthetic method and were analyzed using electron ionization and electrospray ionization mass spectrometry with gas and liquid chromatography, respectively, as MS-inlet systems “

Which if you look at page 13 of my main document, it states this:

“The Iranian researchers synthesised five ‘Novichok’ agents, along with four deuterated analogues. They were all **O-alkyl N-[bis(dimethylamino)methylidene]-P-methylphosphonamidate** compounds (i.e. molecules with the typical nerve agent phosphorus group coupled to *N,N,N,N*-tetramethylguanidine). The *O*-alkyl group was varied, with the methoxy, ethoxy, isopropoxy, phenoxy, and 2,6-dimethylphenoxy derivatives being prepared. The syntheses were carried out on a micro-scale in order to minimize exposure.”

The key parts I’ve highlighted above. I’ve kept a copy for research purposes, but bits that stand out:

## **EXPERIMENTAL**

### Reagents and Chemicals

All the chemicals required for the microsynthesis of *O*-alkyl *N*-[bis(dimethylamino)methylidene]-*P*-methylphosphonamidates were purchased from Sigma–Aldrich (St Louis, MO, USA), Fluka (Neu-Ulm, Germany), and Merck (Darmstadt, Germany), and were used as received. Methylphosphonic difluoride (Scheme 1, cpd 1) was synthesized by use of a method described elsewhere.<sup>[18]</sup> Isopropanol-*d*<sub>6</sub> was prepared by reduction of acetone-*d*<sub>6</sub> by sodium borohydride.<sup>[19]</sup>

So, the chemicals were bought from Sigma, Fluka and Merck. These are all major suppliers of chemicals for most, if not all, of the labs in the world.

Also, in the article, it explains how to actually synthesise the chemicals. Again, this is something that apparently, no-one knows about.

But, it is about Novichok, as a search inside the paper brings it up seven times.

Now I’m not focusing on these five in particular, as some will then say “well, if Iranians made it, and they’re allies of Russia, then it still points to Russia”.

No, what I am still saying is that you cannot rule out any other country from making this. These five were all working in a university. How many universities are there in the world, doing research? Thousands. In fact, all universities do research.

An interesting bit of news has actually just been released. Now, the MSM is reporting that the OPCW have agreed it was of a Novichok variant, and I’m very curious as to what the variant was. But RT has another angle. So, first the MSM article:

<http://www.bbc.co.uk/news/uk-43741140>



# Russian spy poisoning: Nerve agent inspectors back UK

© 12 April 2018

f t m Share

Russian spy poisoning



In the days after the poisoning, specialist officers wore protective suits at the scene in Salisbury

**The international chemical weapons watchdog has confirmed the UK's analysis of the type of nerve agent used in the Russian ex-spy poisoning.**

The Organisation for the Prohibition of Chemical Weapons did not name the nerve agent as Novichok, but **said it agreed with the UK's findings on its identity.**

Russia, which denies it was behind the attack in Salisbury, called the allegations an "anti-Russian campaign".

Foreign Secretary Boris Johnson said: "There can be no doubt what was used."

He added: "There remains no alternative explanation about who was responsible - only Russia has the means, motive and record."

But Maria Zakharova, from the Russian Foreign Ministry, said the allegations in relation to the poisoning of Sergei and Yulia Skripal were a "clear anti-Russian campaign, the like of which we have not seen in the world for a long time in terms of its scale and lack of principles".

She accused the British authorities of ignoring the "norms of international law, the principles and laws of diplomacy, the elementary rules of human ethics".

And she claimed no one except for British authorities had seen the Skripals for more than a month.

She drew comparisons with the case of Alexander Litvinenko, the **ex-KGB agent who died in 2006 in London**, adding that at least a photograph of Litvinenko had appeared after his poisoning.

- **What happened to Sergei and Yulia Skripal?**
- **Yulia Skripal: No-one speaks for me**
- **Who is Sergei Skripal?**

A team from the OPCW visited the UK on 19 March, 15 days after the Skripals were found slumped on a park bench in Salisbury and taken to hospital, along with a police officer who was among the first on the scene.

Ms Skripal was **discharged from hospital** on Monday but the 33-year-old has said her father is "still seriously ill".



Sergei Skripal remains in hospital but his daughter Yulia has been discharged

The OPCW said it received information about the medical conditions of the Skripals and Det Sgt Nick Bailey, it collected their blood samples, and it gathered samples from the site in Salisbury.

Mr Johnson said the UK had invited the OPCW to test the samples "to ensure strict adherence to international chemical weapons protocols".

UK inspectors from the defence research facility at Porton Down in Wiltshire first identified the nerve agent as belonging to the Novichok group.

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## What are Novichok agents?

The name Novichok means "newcomer" in Russian, and applies to a group of nerve agents developed by the Soviet Union in the 1970s and 1980s.

Novichok's existence was revealed by chemist Dr Vil Mirzayanov in the 1990s, via Russian media. He says the nerve agents were designed to escape detection by international inspectors.

Novichok agents are liquids, although others are thought to exist in solid form and could be dispersed as an ultra-fine powder.

Some of the agents are also said to be "binary weapons", meaning the nerve agent is typically stored as two less toxic chemical ingredients that are easier to handle.

When these are mixed, they react to produce the active toxic agent which can cause convulsions, shortness of breath, profuse sweating and nausea.

---

The OPCW does identify the toxic chemical by its complex formula but only in the classified report that has not been made public.

In its summary, which has been published online, the report notes the toxic chemical was of "high purity".

The BBC's diplomatic correspondent James Landale said: "This is understood to strengthen the argument that this substance came from Russia because it is more likely to have been created by a state actor with the capability to make the nerve agent."

The report does not name the source of the nerve agent, a subject which is beyond the remit of the inspectors.

The UK has called for a UN Security Council meeting on the OPCW report, likely to be held next week.

---

Fine. So, let's look at the main OPCW report:

<https://www.opcw.org/news/article/opcw-issues-report-on-technical-assistance-requested-by-the-united-kingdom/>

# OPCW Issues Report on Technical Assistance Requested by the United Kingdom

Thursday, 12 April 2018

## Incident in Salisbury UK

THE HAGUE, Netherlands — 12 April 2018 — The Organisation for the Prohibition of Chemical Weapons (OPCW) transmitted yesterday to the United Kingdom of Great Britain and Northern Ireland (UK) the report of the OPCW's mission to provide requested technical assistance in regard to the Salisbury incident on 4 March 2018.

The results of the analysis by the OPCW designated laboratories of environmental and biomedical samples collected by the OPCW team confirm the findings of the United Kingdom relating to the identity of the toxic chemical that was used in Salisbury and severely injured three people.

The UK's delegation to the OPCW requested that the Technical Secretariat share the report with all States Parties to the Chemical Weapons Convention (CWC) and to make the Executive Summary of the report publicly available.

The Director-General, Ambassador Ahmet Üzümcü, thanked the four OPCW designated laboratories that supported the technical assistance request for their swift and thorough analysis.

### Background

The United Kingdom of Great Britain and Northern Ireland requested technical assistance from the OPCW Technical Secretariat, under subparagraph 38(e) of Article VIII of the Chemical Weapons Convention, in relation to an incident in Salisbury on 4 March 2018 involving a toxic chemical—allegedly a nerve agent—and the poisoning and hospitalisation of three individuals.

The OPCW team worked independently and is not involved in the national investigation by the UK authorities. No State Party was involved in the technical work carried out by the Technical Secretariat.

OPCW designated laboratories are a lynchpin of the Organisation's verification regime and its capacity to investigate allegations of the use of chemical weapons. They must be able to perform off-site analysis of chemical samples collected by OPCW inspectors from chemical production facilities, storage depots and other installations, or from the site of an alleged use of chemical weapons. These laboratories offer the necessary assurance to our States Parties that chemical analyses needed to make determinations or to clarify issues occurring during OPCW deployments are carried out competently, impartially, and with unambiguous results.

As the implementing body for the Chemical Weapons Convention, the OPCW oversees the global endeavour to permanently and verifiably eliminate chemical weapons. Since the Convention's entry into force in 1997 – and with its 192 States Parties – it is the most successful disarmament treaty eliminating an entire class of weapons of mass destruction.

Over 96% of all chemical weapon stockpiles declared by possessor States have been destroyed under OPCW verification. For its extensive efforts in eliminating chemical weapons, the OPCW received the 2013 Nobel Peace Prize.

So, as you can see here, it states it confirms the identity. The main report that we have is:

[https://www.opcw.org/fileadmin/OPCW/S\\_series/2018/en/s-1612-2018\\_e\\_.pdf](https://www.opcw.org/fileadmin/OPCW/S_series/2018/en/s-1612-2018_e_.pdf)

It's not that long, must be an abbreviated version, so here it is:



**OPCW**

**Technical Secretariat**

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S/1612/2018  
12 April 2018  
Original: ENGLISH

**NOTE BY THE TECHNICAL SECRETARIAT**

**SUMMARY OF THE REPORT ON ACTIVITIES CARRIED OUT  
IN SUPPORT OF A REQUEST FOR TECHNICAL ASSISTANCE BY  
THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND  
(TECHNICAL ASSISTANCE VISIT TAV/02/18)**

1. The United Kingdom of Great Britain and Northern Ireland requested technical assistance from the OPCW Technical Secretariat (hereinafter “the Secretariat”) under subparagraph 38(e) of Article VIII of the Chemical Weapons Convention in relation to an incident in Salisbury on 4 March 2018 involving a toxic chemical—allegedly a nerve agent—and the poisoning and hospitalisation of three individuals. The Director-General decided to dispatch a team to the United Kingdom for a technical assistance visit (TAV).
2. The TAV team deployed to the United Kingdom on 19 March for a pre-deployment and from 21 March to 23 March for a full deployment.
3. The team received information on the medical conditions of the affected individuals, Mr Sergej Skripal, Ms Yulia Skripal, and Mr Nicholas Bailey. This included information on their acetylcholinesterase status since hospitalisation, as well as information on the treatment regime.

4. The team was able to collect blood samples from the three affected individuals under full chain of custody for delivery to the OPCW Laboratory and subsequent analysis by OPCW designated laboratories, and conducted identification of the three individuals against official photo-ID documents.
5. The team was able to conduct on-site sampling of environmental samples under full chain of custody at sites identified as possible hot-spots of residual contamination. Samples were returned to the OPCW Laboratory for subsequent analysis by OPCW designated laboratories.
6. The team requested and received splits of samples taken by British authorities for delivery to the OPCW Laboratory in Rijswijk, the Netherlands, and subsequent analysis by OPCW designated laboratories. This was done for comparative purposes and to verify the analysis of the United Kingdom.
7. The team was briefed on the identity of the toxic chemical identified by the United Kingdom and was able to review analytical results and data from chemical analysis of biomedical samples collected by the British authorities from the affected individuals, as well as from environmental samples collected on site.

CS-2018-0991(E) distributed 12/04/2018



S/1612/2018

page 2

8. The results of analysis of biomedical samples conducted by OPCW designated laboratories demonstrate the exposure of the three hospitalised individuals to this toxic chemical.
9. The results of analysis of the environmental samples conducted by OPCW designated laboratories demonstrate the presence of this toxic chemical in the samples.
10. The results of analysis by the OPCW designated laboratories of environmental and biomedical samples collected by the OPCW team confirm the findings of the United Kingdom relating to the identity of the toxic chemical that was used in Salisbury and severely injured three people.
11. The TAV team notes that the toxic chemical was of high purity. The latter is concluded from the almost complete absence of impurities.
12. The name and structure of the identified toxic chemical are contained in the full classified report of the Secretariat, available to States Parties.

--- 0 ---

Okay, let's dissect that for a minute. Look at point 7:

7. The team was briefed on the identity of the toxic chemical identified by the United Kingdom and was able to review analytical results and data from chemical analysis of biomedical samples collected by the British authorities from the affected individuals, as well as from environmental samples collected on site.

So, by the looks of it, they reviewed the analytical results and data. Maybe they used their own database that I mentioned earlier on in my article, which had spectra created by the Iranians at a university. If that is the case, you cannot state with a fact that it was Russia. The UK has stated only a state can sponsor this to be made, but not from what we have found, as the chemicals are all available via normal chemical catalogues.

Also, it states in section 7 that they were 'briefed on the identity of the toxic chemical identified by the UK'. See section 8/9:

8. The results of analysis of biomedical samples conducted by OPCW designated laboratories demonstrate the exposure of the three hospitalised individuals to this toxic chemical.
9. The results of analysis of the environmental samples conducted by OPCW designated laboratories demonstrate the presence of this toxic chemical in the samples.

And then:

11. The TAV team notes that the toxic chemical was of high purity. The latter is concluded from the almost complete absence of impurities.
12. The name and structure of the identified toxic chemical are contained in the full classified report of the Secretariat, available to States Parties.

High purity they say? Not that high otherwise they would be dead (the victims). But of course, it was on a door handle \*cough\*, so maybe the British weather diluted it.

Anyway, what is the other bit of news I hear you ask? Well, RT (of which of course is Russian, so it must be fake) said this. By the way, I hate the term 'fake news'. It depends on where you live, as to what the government deem fake. Being told something is fake, makes the general public more dubious.

And a strange thing I just found out at the opcw's website. You may think it's an independent group? Nope. Look at the Fact Sheets:

<https://www.opcw.org/documents-reports/fact-sheets/>

And at the bottom:





## Fact Sheet 11: Scientific Advisory Board

[AR](#) - [CN](#) - [EN](#)  
[FR](#) - [RU](#) - [SP](#)



This project is co-funded by the European Union.

Maybe nothing may just be the fact sheets. Anyway, I digress. Let's move to RT:

<https://www.rt.com/news/424149-skripal-poisoning-bz-lavrov/>

## Lavrov: Swiss lab says 'BZ toxin' used in Salisbury, not produced in Russia, was in US & UK service

Published time: 14 Apr, 2018 14:37

Edited time: 15 Apr, 2018 06:56

[Get short URL](#)



The substance used on Sergei Skripal was an agent called BZ, according to Swiss state Spiez lab, the Russian foreign minister said. The toxin was never produced in Russia, but was in service in the US, UK, and other NATO states.

Sergei Skripal, a former Russian double agent, and his daughter Yulia were poisoned with an incapacitating toxin known as 3-Quinuclidinyl benzilate or BZ, Russian Foreign Minister Sergey Lavrov said, citing the results of the examination conducted by a Swiss chemical lab that worked with the samples that London handed over to the Organisation for the Prohibition of the Chemical Weapons (OPCW).

#### Read more



[UK appears to be 'destroying' evidence in Skripal case – Russian envoy](#)

The Swiss center sent the results to the OPCW. However, the UN chemical watchdog limited itself only to confirming the formula of the substance used to poison the Skripals in its final report without mentioning anything about the other facts presented in the Swiss document, the Russian foreign minister added. He went on to say that Moscow would ask the OPCW about its decision to not include any other information provided by the Swiss in its report.

Lavrov said that the Swiss center that assessed the samples is actually the Spiez Laboratory. This facility is a Swiss state research center controlled by the Swiss Federal Office for Civil Protection and, ultimately, by the country's defense minister. The lab is also an internationally recognized center of excellence in the field of the nuclear, biological, and chemical protection and is one of the five centers permanently authorized by the OPCW.

The Russian foreign minister said that London refused to answer dozens of *“very specific”* questions asked by Moscow about the Salisbury case, as well as to provide any substantial evidence that could shed light on the incident. Instead, the UK accused Russia of failing to answer its own questions, he said, adding that, in fact, London did not ask any questions but wanted Moscow to admit that it was responsible for the delivery of the chemical agent to the UK.

The Spiez Laboratory reflected on Lavrov's words, [tweeting](#) late Saturday that only the OPCW *“can comment [on] this assertion.”*

The scandal erupted in early March, when former double agent Sergei Skripal and his daughter Yulia were found in critical condition in the town of Salisbury. Top UK officials almost immediately pinned the blame on Russia.

Moscow believes that the entire Skripal case lacks transparency and that the UK is in fact not interested in an independent inquiry. *“We get the impression that the British government is deliberately pursuing the policy of destroying all possible evidence, classifying all remaining materials and making a transparent investigation impossible,”* the Russian ambassador to the UK, Alexander Yakovenko, said during a press conference on Friday.

So, the main part of the article is stated first:

“The substance used on Sergei Skripal was an agent called BZ, according to Swiss state Spiez lab, the Russian foreign minister said. The toxin was never produced in Russia, but was in service in the US, UK, and other NATO states.

Sergei Skripal, a former Russian double agent, and his daughter Yulia were poisoned with an incapacitating toxin known as 3-Quinuclidinyl benzilate or BZ, Russian Foreign Minister Sergey Lavrov said, citing the results of the examination conducted by a Swiss chemical lab that worked with the samples that London handed over to the Organisation for the Prohibition of the Chemical Weapons (OPCW). “

So, what is this 3-Quinuclidinyl benzilate (BZ)? Well, let's take a look and see what we can find out about it.

Now, looking a little into this (not much yet, as it's not been collaborated by anyone) but RT says only US, UK and NATO states have used this. Quite possibly, having a read up on it and it has been used all over. But is it easy to make? Yep. Now the following is directly from a link on the Wikipedia website:

<https://erowid.org/archive/rhodium/chemistry/bz.txt>

Newsgroups: alt.drugs  
From: yshan@bcarh697.bnr.ca (Yogi Shan)  
Subject: Re: Research information  
Message-ID: <1994Jun8.211107.26019@bcarh54a.bnr.ca>  
Date: Wed, 8 Jun 1994 21:11:07 GMT

Lamont Granquist (lamont@hyperreal.com) wrote:  
: synner@cyberspace.com (Ben Lincoln) writes:  
: >Hello. I'm doing a research project on various psychedelics and I was  
: >wondering if anyone here has information on any of the following substances:  
: > BZ, STP, and MK-801  
: BZ comes up frequently on alt.drugs, but all i ever bother to remember is  
: that its nasty...

BZ = 3-quinuclidinyl benzillate

Developed in the '50s; stockpiled as a non-lethal  
chemical warfare agent by U.S. DoD until the early '80s.

Related to the JB-series (eg. Ditran) of benzillate  
ester hallucinogens.

Synthesis is simple, if I recall correctly: esterify  
3-quinuclidinol with benzillic acid. I believe it  
made a very brief appearance on the streets as either  
"TWA" or "DMZ" during the '60s, according to published  
sources. I believe the effects are of the deliriant-  
type, similar to datura/belladonna/atropine.

[ correction added 5/97: "Correct statement is that BZ has never been  
available. TWA & DMZ were benactyzine & Ditran, but I'm not sure which  
is which." -- yshan@nortel.ca ]

Further info, including tox data may be found in  
the "Merck Index", available in the Reference section  
of any decent library.

Yogi

-----  
Newsgroups: alt.drugs  
Message-ID: <5QQYd2N3zI@bion101.bionic.zer.de>  
From: M.LIEBERMANN@BIONIC.zer.de (Martin Liebermann)  
Subject: Re: Research information  
Date: Tue, 07 Jun 1994 21:16:00 +0200

[text deleted -cak]

About BZ i found the following news in my archive:

-----snip-----

Nachricht von : bwhite@oucsace.cs.ohiou.edu (William E. White )  
Betrifft : Re: Your worst nightmare  
Erstellungsdatum : 06.02.1994 14:19:29 W+0:00

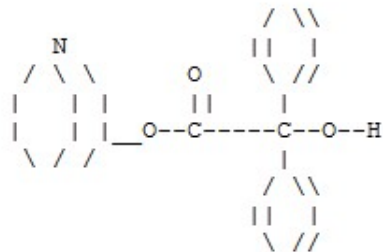
In article <lonewolfCKqK9q.B9u@netcom.com>,  
Joseph E. Gladstone <lonewolf@netcom.com> wrote:  
>: Sounds like BZ to me. I guess it's closely related to nerve gas. The feature  
>: film "Jacob's Ladder" portrayed BZ experiments in Vietnam during the war.  
>: Jody

>No way - BZ lasts for quite a while depending on doseage, 8 - 72 hours.  
>Cholinergics produce wierd effects, but not predictably nightmarish.

Actually, BZ (quinuclidinol benzilate, or QNB) is an anticholinergic, acting specifically on muscarinic receptors. It is extremely potent (and is, in fact, used in research for its antimuscarinic properties). It also seems to have a greater LD50/ED50 ratio than other antimuscarinics (such as atropine, scopolamine, etc). But I wouldn't try it, it's still not particularly safe. Incidentally, it has been reported to tend to induce nightmarish hallucinations/delusions (I could never find out why). In any case, I can imagine that in a combat situation, one could easily find oneself in a bad trip.

(Bad ASCII drawing to follow):

ASCII drawing of QNB (sorry, not too great. The two rings on the top and bottom are phenyl groups).



--

| Bill White +1-614-594-3434 | bwhite@oucsace.cs.ohiou.edu |  
| 31 Curran Dr., Athens OH 45701 | bwhite@bigbird.cs.ohiou.edu (alternate) |  
| SCA: Erasmus Marwick, Dernehealde Pursuivant, Dernehealde, Middle Kingdom |

-----snap-----

MK-801 I've never heard of.

Greetings

Martin Liebermann

M.Liebermann@bionic.zer.de \* PGP-key available \* fon/fax +49 +521 446729  
## CrossPoint v3.02 R ##

=====  
Subject: Re: Research information  
Newsgroups: alt.drugs  
Date: Tue, 7 Jun 94 18:52:05 EDT

BZ is the benzoic acid ester of 3-Quinuclidinol. I believe it was explored as a chemical warfare incapacitating agent by the CIA. I know Dr. James Moore who used to be a prof at the U of DE and made compounds for the CIA. He tells some amazing tales.

Case in point: He made BZ for the CIA and got some on his hands. He felt very disoriented. "I felt like the whole world turned sideways on me." This effect lasted for days and so he asked the big boys at the CIA how to get back. They told him to take some THA (tetrahydroacridine) that is now used as an experimental Alzheimers treatment. He claims it straightened him right out.

MK-801 is a sigma opiate receptor agonist (I think) not sure about that one.

Thanks.

--keith

=====  
Os, this is terrible compound - long-lasting atropine-like hallucinations. Don't do it at home :) Antidote - tetrahydroacridine.

Synth. - Sternbach, Kaiser, JACS, 74, 2215 (1952) - from 3-quinuclidinol (synth. by Sternbach & Kaiser from methyl isonicotinate and ethyl bromoacetate -> cyclisation this quat. salt with metal potassium - sorry, lost this reference...) and chlorodiphenylacetylchloride (synth. - JACS, v.65, 769 (1943))

another QNB-like compd -

N-ethyl-3-piperidol benzilate, ED near 5 mg on 70 kg man, duration 5-6 hours)

Ditran aka N-ethyl-3-piperidol phenyl-cyclopentyl-glycolate, ED 5-15 mg, duration 8-12 hours.

Synthesis is very simple. This is from Chemical Abstracts, 1959, vol 53, #1385h, under the heading "Esters of diaryl hydroxyacetic acids." It references US Patent # 2,843,593.

"Thus, 15 grams anhydrous methyl benzilate in 50 cc dry toluene is added with stirring to 1.2 gram of sodium metal dispersed in 50 cc toluene, the mixture kept below 30 degrees (C) by external cooling during hydrogen evolution. (1 hour). Whereupon 5.2 grams anhydrous 3-quinuclidinol in toluene is added, the mixture refluxed 30 minutes (turns reddish), cooled to -20 degrees C, (turns pale yellow) extracted 3 times with cold 1-normal HCl, made alkaline with 35 cc 15% NaOH, extracted 3 times with chloroform, dried over sodium sulfate, evaporated till crystallization begins, 50 cc of acetone added, allowed to stand 24 hours in a refrigerator (not further defined), and the precipitate filtered off and washed with acetone to give 84.2% benzilic acid ester of 3 quinuclidinol, melting point 160-161. "

Also:

Journal of the American Chemical Society, May 5, 1952, page 2215-2219+

Also, from the Merck Index, a reference to a WHO (World Health Organization) publication, under heading 3-Quinuclidinol. "Health Aspects of Chemical and Biological Weapons (WHO, Geneva, 1970, pp 49-51)

=====

So, without going too much into it, it states that:

"BZ is the benzoic acid ester of 3-Quinuclidinol. I believe it was explored as a chemical warfare incapacitating agent by the CIA. I know Dr. James Moore who used to be a prof at the U of DE and made compounds for the CIA. He tells some amazing tales."

And here it is:

[https://erowid.org/chemicals/bz/bz\\_chemistry1\\_james\\_moore\\_synthesis.pdf](https://erowid.org/chemicals/bz/bz_chemistry1_james_moore_synthesis.pdf)

There are 9 pages of stuff, mostly handwritten.

And then there is bit:

"Synthesis is very simple. This is from Chemical Abstracts, 1959, vol 53, #1385h, under the heading "Esters of diaryl hydroxyacetic acids." It references US Patent # 2,843,593."

Well, can't find the vol 53, but did find the patent:

<https://patents.google.com/patent/US2843593>

Just an abstract from it, but it matches some of the above. Goes into more detail in the patent:

The clear almost colorless solution was cooled to about 25 C. and extracted with 50 cc., then 50 cc. and again 25 cc. of cold normal hydrochloric acid. The combined acid extracts were made alkaline by the addition of 15 sodium hydroxide, keeping the temperature below 30 C. during the neutralization by means of an ice bath. The alkaline solution was extracted with 50 cc., 50. cc. and The combined ether extracts were dried over sodium sulfate and the ether removed by distillation. Ethanolic-HCl and ether were added to the thick, colorless residue-and pure white 7-di-n-butylarninopropyl benzilate hydrochloride immediately started to crystallize. Crystallization was completed by overnight refrigeration. The product was filtered, washed with some ether and dried. It weighed 5.46 gms. A second crop was obtained from the mother liquor after evaporation weighing 0.5 gm. The total yield obtained was 5.96 gms. or approximately 69% of theory.

--

So, after a long bit of research, of which many may have either fallen asleep, or actually managed to get to the end, you cannot conclude that only US, UK or NATO have BZ. Just in the same way that you can't say only Russia has Novichok. Anyone in a research facility could make these, as I've found out in my findings. Now I'm not thinking this is going to change the government's stance (either country), but it's worth looking into things. Never assume everything is the truth, just because the news, government or whoever tells you. Question everything.

As I said before, not everyone can do this searching, but if you're curious, why not think for yourself, and look at other sources.