

Research on the Characteristics of Bioterrorism Crime Under the New Situation

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Abstract: The current global biosecurity situation is becoming more and more severe. Globalization has facilitated the cross-border spread of infectious diseases and bioterrorism risks. The hidden hazard of bioterrorism attacks facing countries all over the world is gradually increasing. Bioterrorism is a typical "black swan" risk. Based on the literature research methodology and case study, this paper systematically explains the criminal features of the subject, object, type, means and behavior disposal of bioterrorism crime from the perspective of biological characteristics. Including: bioterrorism crimes show a diversity of criminal subjects, refer to state actors, terrorist organizations, individuals and other non-state actors; criminal objects are extensive, especially for food, medicine, environment, grassland, biology, etc.; crime types are diverse, It is mainly spread through pathogens, people, logistics systems, etc.; the means of crime are concealed, the detection is difficult, and the harm is serious; the criminal behavior is difficult to deal with, and the risks exist for a long time. In the context of the international epidemic, counterterrorism is facing a growing number of challenges. Terrorism and viruses, regardless of borders, are equally harmful to all people. Bioterrorism is rampant everywhere like a virus, seriously threatening national security, social order and people's well-being. Bioterrorism crime has become the main defense object of international anti-terrorist threat.

Keywords: Holistic View of National Security, Bioterrorism Crime, Characteristics

1. Introduction

The multidisciplinary development of global science and technology in the 21st Century urges the formation [1] of a modern theoretical system of biosecurity that centers on life science and intersects politics, economy, military, science and technology, and culture. The increasingly complicated global political environment also urged a huge change in the international biosecurity landscape [2]. In the process of exploring multi-level coordination strategy and management ability, countries gradually and dynamically enrich the content of the area, continuously expand and reinforce the meaning and extension of the concept of biosecurity [3]. As a part of the national security system, biosecurity covers more than just "biological" security but involves other security-related areas such as politics, economy, society, military, technology, and culture. In 2020, General Secretary Xi Jinping pointed out that

biosecurity will be included in the overall national security system to protect people's health, secure national safety, and maintain long-term peace and order of the country. Through systematic planning of national biosecurity risk control and management system building, national biosecurity governance capacity [4] will be comprehensively improved. In this article, the author discusses the characteristics of acts of bioterrorism under the new situation, especially from the holistic view of national security.

2. Literature Review on Bioterrorism Crime

The author searched Chinese and English literatures published during 2010-2021 on CNKI using the keyword "bioterrorism" and got 508 results, including 459 English and 49 Chinese articles. The number of literature is directly related

to the international counterterrorism situation. Both National Security Strategy of the United States of America reports issued during Obama's term of office identified bioterrorism and circulation of biological weapon [5] as the top and most urgent strategic risk in national security. Under this context, researches on bioterrorism are conducted at an unprecedented scale. In 2010, there were 92 pieces of related articles. The enthusiasm of academia on bioterrorism cooled after the provisional victory of international counterterrorism efforts marked by the death of Bin Laden, leader of al-Qaeda, in 2011. In 2012, there were only 51 articles published. In 2013, the quick expansion of ISIS again drew people's attention to bioterrorism and urged the publication of 61 articles. From then on, terrorist attacks declined yearly due to the change in the international counterterrorism situation. Related articles published reached a bottom point in 2018 (30 articles) but saw a slight increase shortly after. The pandemic situation in 2020 reminded people of the necessity of biosecurity, especially bioterrorism, and the number of published articles reached 51. By 1 Dec 2021, there is a higher increase, as 78 articles were published in 6 months. Sorted by subject, 64% of these articles focused on bioterrorism, 12% focused on biosecurity, 9% on medical aid and emergency aid, 5% on biowarfare agent, biodefense, and biological weapon, 3% on epidemic prevention and detection system, while others amounted to 7%. The author selected representative literature for sorting and screening.

2.1. Foreign Literature

The U.S. National Science Advisory Board for Biosecurity pointed out the increasing threat of the combination of terrorism and biological weapons, and biological weapons are spreading among non-state actors (Includes non-state actors such as national separatists, extremist cults, terrorist or pseudo-religion organizations, and other saboteurs) (NSABB. 2013). The U.S. Office of Science and Technology Policy suggested that the source of bioterrorism could be traced to non-state actors represented by biohackers (Refers to independent biologists, garage biologists and the likes who work to prevent technical monopoly by a minority. They popularize modern biological knowledge by using the Internet and other means.) (OSTP. 2013). English scholar Filippa Lentzos wrote that the biggest bioterrorist threat comes from the pathogen that may be spread intentionally by military labs ("Biology as a Weapon", 2016). As for the method, U.S. Centers for Disease Control and Prevention stated that BTX, raw chemical materials, dirty bombs, yperite, and other biochemical agents are all potential options for terrorist attacks (Centers for Disease Control and Prevention. 2017). As for the consequences, American scholar Crystal Boddie said that such attacks could cause diseases, deaths, and panic that may consume disproportionate resources (Federal Funding for Health Security in FY2016. 2015). Objectors claim that bioterrorism is a "self-fulfilling prophecy", as bioterrorism killed fewer people when compared to cigarettes and medical accidents [6]. As for countermeasures, Israel scholar Manfred S. Green

suggested that carrying out joint exercises involving multiple countries and at the same time continuously reinforcing information exchange on bioterrorism risks and control [7]. Australian scholar Patrick Walsh presented that a healthy organization and community leaders are necessary to focus on the bioterrorism threats [8]. Besides, authors including Jeffrey Ryan [9], Jeanne Guillemin [10], and Daniel M. Gerstein [11] respectively studied bioterrorism from the perspectives of biosecurity, biological weapon, and biodefense.

2.2. Chinese Literature

The mainstream idea toward bioterrorist threats is that any biotechnology advancement may be exploited by bioterrorists to pose a great danger to national biosecurity [12]. The reason is commonly attributed to easy access to standard biological warfare agents such as Ricin and Bacillus Anthracis. They are highly toxic and harmful, therefore used in terrorist attacks [13]; The combination of terrorism and biochemical weapon after the Cold War incubated state and non-state biochemical terrorists [14]. About methods and characteristics, it is commonly believed that: Terrorists usually commit crimes through mailing, manually spreading, aerosol-based spreading, suicide-type contagion, and so on [15]. The general standpoint against terrorism is the harmonious development of biological technology while cracking down on bioterrorism simultaneously [16]. The main points on counterterrorism measures are to pay more attention to terrorist activities and strengthen prevention measures [17], creation of biological attacks and biological weapon risks should receive the highest penalties, especially the security of biological lab music be strengthened [18]. In addition, Tao Zheng [19], Weidong Chai [20], Minhui Cui [21], Wanxia Liu [22], and Lilei Zhang [23] discussed the threat of biological terrorism and countermeasures from the aspects of biosecurity, biodefense, biosecurity materials, rule of law, and psychology respectively.

In summary, Chinese and foreign academia has produced a relatively rich set of literature on bioterrorist attacks that covered the aspects of origins, methods, consequences, and countermeasures of such threats. These articles covered the perspectives of biosecurity, biological weapons, biological warfare agents, biodefense, emergency aid, and others. Such articles represent the transdisciplinary and multi-perspective nature of these researches that cover military science, medicine, science, engineering, history, law, and others, which have contributed significantly to the understanding, prevention and counterattack of acts of bioterrorism. However, by far, no comprehensive and systematic study on the characteristics of acts of bioterrorism has been conducted in existing researches, especially in the discussion of the actors, objects, types, methods, and countermeasures of such crimes from the perspective of biological characteristics. Therefore, in this paper, this author takes the concept of bioterrorism defined in the Biosecurity Law as an entry point for describing acts of bioterrorism from the perspective of biological characteristics.

3. Definition and Characteristics of Bioterrorism Crime

3.1. Definition of Bioterrorism Crime

As defined in the Anti-terrorism Act enacted in December 2015, terrorism is an opinion and act with political and ideological goals. Paragraph 11, Article 85 of Biosecurity Law of the People's Republic of China passed at the 22nd meeting of the 13th National Congress of the Communist Party of China in October 2020 defined bioterrorism as an intentional attack using pathogenic microorganisms, biotoxins, and the likes to threaten the health of humans, animals, and plants. These actions cause social panic for political goals. Acts of bioterrorism refers to the opinion and act that uses pathogenic microorganisms or toxins as weapons for terrorist activities, by spreading pathogenic bacteria, viruses, and others to induce a sudden outbreak of epidemic such as acute infections, causing large casualties and undermine social order for special political, ideological or other intentions. As terrorist activities became more rampant in mid and late 20th Century, bioterrorism has become one of the most threatening acts of terrorism in the world. The "Anthrax Mail" incident in the United States in September 2001 is a turning point in the history of international bioterrorism, leaving 22 infected and 5 dead victims. Since then, bioterrorism was given unprecedented attention internationally, and countries began to build their biosecurity abilities, especially the ability to respond to acts of bioterrorism.

Data from the world's largest terrorist attack database, GTD, shows that from 1970 to 2018, there were more than 190,000 terrorist attacks worldwide. Of this, only 37 were bioterrorist attacks, amounting to less than 0.02% [24]. Although low in numbers, this type of attack is extremely devastating to national and human security because it could hurt human health and even the future generations due to the large contamination area, the stubborn residues, and the intractable body injuries.

The global biosecurity situation is deteriorating. Globalization has made it easier for infections and bioterrorist attacks to spread across borders; the expansion of human activities that invades the habitat of organisms stimulates and speeds up the "cross-border" invasion of viruses and bacteria. The dark side of biotechnology advancement is becoming clearer. Bioterrorist activities, like a virus, have crossed territorial borders and become a key focus of international anti-terrorism measures.

3.2. Characteristics of Bioterrorism Crime

Bioterrorism Crime is a special type of terrorist activity with biological characteristics. This author explores this activity from aspects such as subject, object, method, means, countermeasures, and others.

3.2.1. Criminal Subject

The crime involves multiple subjects, including state actors

and non-state actors such as terrorist organizations and individuals.

State actors. States may launch bioterrorist attacks against their enemies for military, political, or economic reasons. In the 14th Century, the Mongols threw the bodies of plague victims into the city of Kafa to spread the disease and seize the city. At the same time, it caused the plague outbreak throughout Europe [25]. During World War I, Germany spread diseases with *Vibrio Cholerae* and *Yersinia*, exported livestock infected with anthrax and glanders to Russia, Romania, Mesopotamia, France, and others. The largest germ warfare committed in human history was by Japanese invaders against China [26]. Between 1932 and 1945, Unit 731 and Unit 100 of Japan's army injured and killed many Chinese soldiers and people by spreading about 15 million fleas in Zhejiang, Hunan, Jiangxi, and other places to contaminate food and drinking water in the cities with *Vibrio Cholerae*, *Bacillus Anthracis*, *Yersinia Pestis*, and *Salmonella*. They also imposed human trials of biological weapons on prisoners of war and civilians.

Although the *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons* came into force on March 26, 1975, it lacks an effective compliance review system. Some countries have reinforced the deployment of biological weapon with the excuse of building counter-bioterrorism and infection-control capabilities. More attention has to be paid to the fact that biotechnology advancement has also increased bioterrorist activities, and preventative measures need to be taken accordingly [27].

Following globalization and technological development, the problem that non-state actors, especially terrorist organizations and terrorists, are able to acquire weapons of mass destruction and related materials and technologies still exists [28].

Terrorist Organizations. Documents discovered at al-Qaeda's Afghanistan base showed that Bin Laden had funded advanced biochemical weapon research. In March 1995, the Aum Shinrikyo cult launched a sarin gas attack on the Tokyo subway. At the same time, they spread anthrax spores at 8 places, causing 12 deaths and more than 5,000 injuries in total. The pseudo-religion possessed anthrax spores and other biological agents and planned a bioterrorist attack. This is the first bioterrorist attack launched by a non-state actor [29]. In 2014, Syrian opposition groups seized a computer belonging to ISIS with documents on biological weapon development and terrorist attack plans. In 2015, ISIS got chemical weapons from the Syrian weapons arsenal and used them to develop advanced nerve agent-like biological weapons, which were successfully deployed in Iraq and Syria in 2016 [30]. In August 2018, ISIS issued a poster inciting the people to "get the deadliest virus" from human and mouse feces and launch biochemical attacks against Western countries.

Terrorists. Driven by activism, ultra-nationalism, or extreme religious beliefs, people working in microbiology, medicine, veterinary medicine, and other similar industries

with access to dangerous pathogens may resort to violence and obtain biochemical weapons at the expense of their lives to make random kills [31]. The 2001 "Anthrax Mail" spread in the U.S. could be traced to a researcher from Fort Detrick Biological Laboratory. In April 2013, May 2013, October 2018, September 2020, nine ricin mails, sent by individuals, were detected during the postal screening that prevented send to the president, senators, local officials, and the mayor of New York in the United States [32]. In June 2018, the German police stopped a ricin-based bioterrorist attack planned by an ISIS supporter and found about 1,000 deadly castor beans. Some individuals also used their infectious pathogens as a weapon to launch suicide attacks. In February 2020, intelligence organizations in Iraq and other countries found that ISIS incited individuals to commit suicide attacks using the Coronavirus disease.

3.2.2. Criminal Object

Widespread object of crime, especially on foods, medicines, the environment, forests and grasslands, organisms, and others.

Terrorism is never about aimless violence. On the contrary, it is a strategic action conducted intentionally with clear targets. Bioterrorists commonly target humans at crowded areas, water sources (reservoirs, diversion channels, and others), food and medicine, ecological environment, forests and grasslands, and living organisms. During World War II, Unit 731 of the Japanese Army built a bacteria factory in Northeast China and spread pathogens. Pollution of food and water sources caused a pandemic that killed many Chinese. In 1984, the Rajneesh cult launched a bioterrorist attack in the U.S., 45 out of 751 food poison victims were hospitalized. Agricultural security incidents including Mad Cow Disease, Aftosa, Avian Influenza, and Swine Influenza broke out repeatedly in the 1990s. Terrorist organizations may use pathogenic microorganisms or other pathogens to attack food crops and livestock.

3.2.3. Criminal Type

Diversified types of crimes, mainly spread through pathogens, people, logistics systems, etc. This crime is the process of spreading infectious microorganisms or toxins, causing mass disease or poisoning.

Release aerosol. Suspend infectious or toxic particles in the air that accumulates in the alveoli upon breathing in. Aerosol-based terrorist attacks are possible through the building ventilation duct, and biological agents could also spread outdoors. The 1993 Anthrax attack committed by the Aum Shinrikyo cult in Japan spread anthrax aerosol from the roof.

Spreading through mediums. Such cases are usually realized by spreading infected mediums such as mosquitoes, cicadas, or fleas. Unit 731 of the Japanese army during World War II spread Yersinia-carrying fleas in China. During the Cold War, the United States studied yellow fever-infected mosquitoes. Nowadays, genetic engineering may, unfortunately, open a new window for using insects as weapons. USDA entomologists had studied the possibility of spreading HIV through genetically modified mosquitoes [33].

In-person spreading. People in crowded public places and daily activity areas are potential mediums to spread these biological agents. Individuals or groups of terrorists may intentionally infect themselves with severe diseases such as smallpox and the plague. They will then travel to target countries and places to spread these diseases, causing extensive spread and social panic.

In February 2020, the U.S., the U.K., Italy, Belgium, Australia, Japan, Kazakhstan, and Tunisia saw cases where carriers of the Coronavirus disease deliberately coughed and spit on others in public areas, polluted church door handles and in stores with their saliva. This is a type of terrorist attack by weaponizing the Coronavirus disease.

Bioterrorist attacks launched through logistics systems such as postal and courier delivery. The 2001 "Anthrax Mail" attack in the U.S., and the "Ricin Mail" attacks in the U.S. in 2013, 2018, and 2020 all belong to this category.

Besides, terrorist and extremist ideals are propagated through the internet, using the pandemic and other information to incite terrorist activities. In February 2020, ISIS threatened to initiate suicide attacks using Coronavirus disease online. Overseas "East Turkestan Islamic Movement" used the pandemic to urge Muslims to wage "jihad" against heretics.

3.2.4. Criminal Methods

Methods are increasingly concealed, increasing difficulty to detect and therefore extremely harmful.

Bioterrorist attacks involving the manufacture, production, carrying, and spreading of pathogenic microorganisms or toxins are characterized by their highly concealed methods, the delayed occurrence of symptoms, and high infectivity. It is far easier to hide a biological fermentation tank than chemical or nuclear weapons, as even spy satellites struggle to detect biological weapon production equipment. Unlike conventional weapons, lyophilized or capsuled biological agents (As the main source of bioterrorism, biological agent refers to the collection of pathogenic microorganisms or toxins used in bioterrorist attacks, including viruses, bacteria, fungi, rickettsia, parasites, chlamydia and biotoxins.) can be placed in and mailed as food, beverages, handbags, and envelopes. Such agents are almost invisible to X-ray, metal detectors, and detection dogs. After an incubation period, biological agents will cause diseases. This period, depending on the agent, varies from 3-5 hours to 3-5 days or longer. The pathogens could multiply in the human body and turn the surrounding environment into a diseased hell through continuous contamination and thus cause huge losses. The 1979 explosion of a biological weapon base in Sverdlovsk city of the Soviet Union produced a lot of anthrax aerosol, which started a decade of pulmonary anthrax epidemic in the city and caused more than 1,000 deaths. In 1984, a terrorist organization used BTX-containing orange juice to kill 50 lives on 2 U.S. submarines and U.S. military bases. The 2001 anthrax attack that happened in the U.S. was traced to the suspect after about seven years. The easily concealed nature of such activities makes prevention and detection extremely difficult.

3.2.5. Criminal Behavior

It is difficult to deal with criminal behaviors, and security risks exist for a long time.

As a typical "black swan" event, bioterrorist attacks are rare, albeit devastating and unpredictable [34]. Firstly, the treatment subjects involved are extensive. From the areas, which areas have been polluted or suspected to have been polluted; as for the victims, the large group of infected people that require injury assessment and classification in a short period; as for the management of epidemic area, vehicles and people in and out needs to be screened; as for infection control and contamination treatment, all the places, objects that may have been exposed to the agents, as well as the sewage, exhaust gas, and waste shall be treated to make them harmless. Secondly, the environment where the treatment takes place is highly dangerous. People conducting the treatment have to find the source of infection and come into direct contact with the infected environment, and any improper protection may expose them to the biological agents, causing infection and rapid spread of the disease. In May 2013, the official that checked two mails sent to the Mayor of New York was lightly poisoned by the Ricin content. Finally, large amount of resources will be required to deal with such incidents. Treatment of the wounded will only be possible with enough medical staff, beds, and special resources such as reagents, medicines, and protective equipment. This will impose a heavy workload in clinical inspections, health, and environmental sanitation monitoring, and may require more and better high-level biological labs, biological sample transportation tools, storage conditions, etc. The consequences will last long after the act has taken place and the reduction of pathogen carriers may not necessarily lead to an optimistic result. The treatment measures shall continue until the last pathogen carrier is under control [35].

4. Conclusion

Under the international context of the pandemic, counter-terrorism work is facing more challenges. Terrorism and viruses, regardless of borders, are equally harmful to all. Bioterrorist incidents seriously threaten national security, social order, and people's welfare.

General Secretary Xi Jinping has pointed out in his report at the 19th National Congress of the Communist Party of China that terrorism is a common risk for all mankind. He said that "people all over the world should work together to build a community with a shared future for mankind, create a peaceful, safe, open, inclusive, clean and beautiful world that enables mutual prosperity." He emphasized the importance to "follow the holistic view of national security" and "coordinate response to old and new threats, and oppose all forms of terrorism." [36] From the holistic view of national security, biosecurity shall be taken as an important part of the national security system. And crimes against biosecurity, especially acts of bioterrorism, as a major activity that could seriously harm national security, requires more studies in the future.

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References

- [1] Jinqiang Tian, Rui He, Jiejun Chen. (2019). Achievements and Prospects of China's Biosecurity Science and Technology. *Journal of Biosafety*, Issue 2, 111-115.
- [2] Lin Sun, Chunhua Yang. (2019). The Practice and Impact of "America First" Principle in Biosecurity. *Military Medical Sciences*, Issue 2, 81-88.
- [3] Jie Liu, Xiaobo Ren (2016): Analysis of China's Current Biosafety Issues and Countermeasures, *Bulletin of Chinese Academy of Sciences*, Issue 4, 387-393.
- [4] Jinping Xi (2021). Inclusion of Biosecurity as a Part of National Security System, <https://baijiahao.baidu.com/s?id=1663938728550580567&wfr=spider&for=pc>, accessed on July 23.
- [5] The Biosecurity Law (2020) defines that "Biological weapon refers to microbial agents, other biological agents, and biological toxins that are not designed to be duly used for prevention, protection, or other peaceful purposes in their types and quantities, regardless of their source and manufacturing methods; it also includes weapons, equipment, and transportation tools designed for applying the said biological agents and toxins for hostile purposes or in armed conflicts." <http://www.ivdc.org.cn/fwzx/202112/P020211210339386821138.pdf>
- [6] Milton Leitenberg (2009), "The Self-fulfilling Prophecy of Bioterrorism" *The Nonproliferation Review*.
- [7] Confronting the threat of bioterrorism (2018): realities, challenges, and defensive strategies. *Terrorism and health* 2.
- [8] Intelligence, biosecurity, and bioterrorism (2018), London, Palgrave Macmillan UK.
- [9] Jeanne Guillemin (2005), *Biological Weapons: From the Invention of State-Sponsored Programs to Contemporary Terrorism*, New York: Columbia University Press, p. 9.
- [10] Jeffrey Ryan (2016), *Biosecurity and Bioterrorism: Containing and Preventing Biological Threats*, Massachusetts: Butterworth-Heinemann, p. 21.
- [11] Daniel M. Gerstein (2017), "Glaring Gaps: America Needs A Biodefense Upgrade," *Bulletin of the Atomic Scientists*, Vol. 73, Issue 2, 1-2.
- [12] Yang Xue (2017), "Biological Weapons Convention" Situation Analysis and Research on China's Future Implementation Countermeasures, *Military Medicine*, Issue 11, 917-922.
- [13] Yihan Gao (2017), Overview of Current International Biosecurity Situation, *People's Military Medicine*, Issue 6, 553-558.
- [14] Zikui Liu (2020), Biochemical Terrorism and Post-Cold War U.S. Anti-Biochemical Weapon Proliferation Policy, *World Economics and Politics*, Issue 7, 35-68.

- [15] Xiaoru Luo (2020), "Spear" and "Shield" of National Defense Biosecurity, *Military Digest*, Issue 6, 51-55.
- [16] Jinglin Wang (2017), "Biological Weapons Convention" Situation Analysis and Research on China's Future Implementation Countermeasures, *Military Medicine*, Issue 11, 917-922.
- [17] Youhai Sun (2017), Accelerating the Modernization of National Biosecurity Governance Capabilities, *Confidentiality Work*, Issue 4, 9-11.
- [18] Tianbao Qin (2020), Legislative Positioning and Development of "Biosafety Law", *Journal of Social Sciences*, Issue 3, 134-137.
- [19] Tao Zheng (2014), Biosecurity is a necessary life engineering for national strategy, *Military Medicine*, Issue 2, 90-97.
- [20] Weidong Chai (2014), The harm of biological under preparation to national security, *International Security Research*, Issue 1, 136-160.
- [21] Minhui Cui (2021), Biosafety Materials for Bioterrorism and Biowarfare, *Applied Chemistry*, Issue 5, 467-481.
- [22] Wanxia Liu (2020), Biosecurity from the Perspective of Overall National Security, *International Affairs*, Issue 10, 14-17.
- [23] Lilei Zhang (2015), Discussion on Anti-Bioterrorism Psychological Rescue, *Southeast National Defense Medicine*, Issue 1, 108-110.
- [24] https://www.start.umd.edu/gtd/search/Results.aspx?expanded=no&casualties_type=&casualties_max=&success=yes&weapon=1&ob=GTDID&od=desc&page=1&count=100#results-table.
- [25] Barras V, Greub G. (2014). History of Biological Warfare and Bioterrorism. *Clinical Microbiology and Infection*, Issue 6, 497-502.
- [26] Zhiqiang Xia et al. (2010). Countermeasures, Prevention and Treatment against or of Nuclear, Chemical, Bio-Explosive Terrorist Threats, Beijing: Chemical Industry Press, 153-154.
- [27] Youhai Sun. (2020). Acceleration of National Biosecurity Treatment Ability Modernization, *Confidential Work*, Issue 4, 9-11.
- [28] Representative of China Elaborated on China's opinions in relation to the Prevention of Weapons of Mass Destruction. (2021). https://www.sohu.com/a/302522611_123753.
- [29] Richard A. Falkenrath, Robert D. Newman and Bradley A. Thayer. (1998). America's Achilles' Heel: Nuclear, Bio- Logical, and Chemical Terrorism and Covert, Attack; Sheryl Wu Dunn, Judith Miller and William J. Brad. (1998). "Home Japan Germ Terror Alerted Word,". *The New York Times*, May 26.
- [30] Department of Defense. (2017). Annual Report to Congress on Chemical and Biological Defense Program, Washington, D.C.: U.S. Government Printing Office.
- [31] Bruce Hoffman. (1997). "Terrorism and WMD: Some Preliminary Hypotheses,". *The Nonproliferation Revival*, 4 (3), 45-53.
- [32] Suspect that Sent Ricin Mail To Trump under Arrest! How Poisonous is Ricin? (2021). <http://news.39.net/shwx/200921/8231945.html>.
- [33] Lockwood JA. (2012). Insects as Weapons of War, Terror, and Torture. *Annual Review of Entomology*, Issue 57, 205~227.
- [34] Nassim Nicholas Taleb. (2011). *The Black Swan. The Impact of the Highly Improbable*. Translated by Wan Dan and Liu Ning, Beijing: CITIC Press, 122-123.
- [35] Zhiqiang Xia et al. (2010). Countermeasures, Prevention and Treatment against or of Nuclear, Chemical, Bio-Explosive Terrorist Threats, Beijing: Chemical Industry Press, 197-198.
- [36] Jinping Xi. (2017). Report on behalf of the Central Committee of the 18th National Congress of the Communist Party of China. http://www.china.com.cn/cppcc/2017-10/18/content_41752399.htm