



Received: 4 October 2020
Accepted: 24 July 2021
Published: 1 January 2022

¹ Associate Professor of History,
Department of History,
University of Mazandaran,
Babolsar, Iran
E-mail: e.shabani@umz.ac.ir

² PhD graduate, Department of
History, The Research Institute
of Imam Khomeini and Islamic
Revolution, Tehran, Iran.
Lecturer Department of Islamic
Teachings Allameh Tabatabai
University. (Corresponding
author.
E-mail: ali.zareei@chmail.ir

³ PhD Student, Department of
History, Bu Ali Sina University,
Hamedan, Iran.
E-mail:
reza.muhammadi90@gmail.com

How to cite this article:
Shabani, Emamali; Zareei, Ali;
Mohammadi, Reza (2022).
Biological Weapons and their
Functions in the Middle Ages of
Iran, *The International Journal of
Humanities* (2022) Vol. 29 (1):
(1-23).

<http://ejih.modares.ac.ir/article-27-46582-en.htm>

RESEARCH ARTICLE

Biological Weapons and their Functions in the Middle Ages of Iran

Emamali Shabani¹ , Ali Zareei² , Reza Mohammadi³ 

Abstract: The use of biological agents, also known as biological weapons in modern terms, to eliminate enemies and rivals, has been a critical issue in recent decades. The history of political developments in Iran during the Islamic Middle Ages has been witness to many instances of using weaponized biological agents for accomplishing political-military goals. This research employs a historical approach and attempts to identify the functions of biological agents in political and military developments of Iran during the Islamic Middle Ages. The results indicate that in addition to functioning as an instance of deterring propaganda, thus breaking the enemy's morale, biological weapons were able to alter the balance of military power in the battleground and determine the triumphs and defeats. Accordingly, biological agents have had other military and political implications, such as sabotaging enemies' weaponry and equipment and eliminating prominent figures. Iran's history has documented innumerable instances of such applications of biological weapons during the Middle Ages.

Keywords: Biological Agents, Microbial Weapons, Military Functions, The Islamic Middle Ages, History of Iran.

Introduction

In history, especially in recent decades, using biological agents as armaments has been one of the gravest sources of concern for human societies. Based on historical reports, governments, political groups, and other figures have always employed biological agents as a weapon to eliminate enemies and rivals.

There are records of using biological weapons, including different forms of poisons in Iran's history. Interestingly, the development of poison production technologies in proportion to demands dates back to centuries ago. The Middle Ages history of Iran are regarded as a turning point in its military history during which the country was engaged in the use of biological or microbial agents and the development of perilous weapons. Although the biological weapons were not as strong and advanced as today, they were utilized with no hesitation at the period.

Hence, the political conditions of the time as well as the considerable scientific growth, particularly in chemistry, convinced many of those in power, individuals, and political-religious movements to use such weaponry. Besides, the new weapons acted as a means to exert authority in the political-military context. Furthermore, the evolution of these weapons in recent centuries has been beholden to the scientific developments of the Islamic Middle Ages. Also, the scientific and cultural dominance of Iran in the Golden Age of Islamic civilization distinguishes the significant role of Iran's military history in the scientific development of biological weapons worldwide.

Importantly, biological threats have put human societies at severe risk, particularly Iran, based on various reasons¹. Political thinkers believe that the threats will increase in

¹For example, the study can refer to the use of biological weapons by political- religious extremist groups, most importantly ISIS. The ISIS's agenda includes the use of a disease agents or viruses to conduct massive, simultaneously highly destructive attacks. Field reports indicate ISIS's widespread use of microbial weapons and the subsequent cases of abnormal diseases. Besides, few call into question the Western countries indispensable abuse of scientific achievements to develop biological

weapons for military and dominance-gaining purposes. The medical biotechnology experts believe that biological assassination is one of the main causes of the deaths of many politicians worldwide. Spy agencies often lead and conduct assassination operations. Moreover, the extensive scope of microbiology and biochemistry research departments and the recruitment of tens of thousands of specialists indicate the crucially of the issue with regards to security in the contemporary

the coming decades. Besides, since civilians are far more vulnerable to biological agents than military personnel, the matter should be taken more seriously. Biological agents are responsible for the high severity of injuries incomparable to the attacks with non-destructive weaponry. Historical evidence and the massacre of tens of thousands of people by such weapons in history confirm this view. Therefore, the type of exposure to and perhaps confronting such weapons is crucial. Besides, given the historical nature of the subject, a historical investigation can help policymakers reach a thorough understanding of the issue, which has troubled the Iranian society, by referring to past experiences. Therefore, this paper took an analytical- descriptive approach to find the answers to a fundamental question: what were the status and functions of the biological agents in the military developments in Iran during the Middle Ages? Despite the significance and its impact on the military and political context of Iran in the Middle Ages,

world. Also, the international community has always warned about the use of these uncommon weapons to massacre nations and has also selected June 29th as the day for the struggle against chemical and biological weapons in the world calendar. (See: Sattāri: 19-20, 28-

few independent research, related to Iran's history, has taken an analytical approach to explore the subject, which highlights the innovativity of this research. Hence, this research emphasizes the rigorous examination of the subject using reliable texts and sources.

A. The Nature of Biological Weapons

The word “biological” is the keyword of the research. Its nature, characteristics, and various types should be defined at first. The living agents and weapons, or in its modern sense of the word biological, include living organisms of any nature, such as bacteria, viruses, or natural pesticides, that apply to kill or cause diseases in humans, animals, and plants. (Sattāri: 22, Mehrābī, Tavanā: 41). Accordingly, biological or toxic agents can apply to killing or harming humans, animals, and plants intentionally to terrorize, threaten, and impel a government or a group of people to do something or carrying out some political

35 & Mehrabi: 44-45). Meanwhile, the public concern and Iranian authorities' alarm about the serious risks of biological agents, sometimes referring to the risk as biological warfare, reveals the concerning challenge for the future of Iran.

or social demands are on the agenda. (Sattāri: 22, Pūrdast Gardan: 1-2).

Biological weapons have different types: microorganisms, bacteria, fungi, toxic drugs, or deadly animals embedded in weapons such as bows and catapults (See: Ibn-athīr: 41/13, Schimmel: 98), daggers, swords, even bloodletting tools, poison, human corpses, snake and scorpions to conquer cities and keeps. (See: Khāndmīr: 473/1, Moghaddasī: 582/2).

Biological weapons had different types of applications, such as using corpses or any other toxic substance that lead to diseases like cholera, plague, and smallpox to contaminate the food and water of those in a fortress under siege. (See: 'Owfi: 316/3-318, Gilānī: 43, Āmolī: 59)

Undoubtedly, biological weapons have advantages that have made them appealing options in history. Their superiorities include massive fatality, imposing a psychological burden on breaking the morale of opponents, horror, the element of surprise, ease of production, complexity, cheapness, highly destructiveness against life or the environment, and most importantly, the

indeterminacy of the agent used (See: Sattāri:51-52).

B. Biological Agents and Sharia

Some parts of political thought in the Islamic world are allocated to the how to's and conditions of eliminating opponents using unconventional weapons. The works of Muslim scholars in the Islamic Middle Ages reflect the use of biological weapons or massacres, even shortly and temporarily. Their perspectives are seemingly different and sometimes contradictory, the traces of which are identifiable in the reflective books of the period. The difference and the conflicts mentioned may also imply the various religious affiliations of the thinkers or the political conditions of the Muslim world, some of whom mostly belonging to the Sunni sect, have not only not forbidden the use of biological weapons, but also provide recommendations and justifications for it. For example, Imām al-Māwirdī (364-450 AH) adduces to Early Islam to pronounce the use of any method to fight against enemies and surround them permissible. He says:

“It is permissible for the commander of the Muslim Corps to ruin the enemy's houses over them...Cutting the palm trees and other trees of the enemies is advisable...He (Muslim soldier) has the right to do so...The Muslims' commander is allowed to fill the enemy's wells or flood water toward their camp, although they are women and children among them because this is one of the most effective means of breaking the enemy, thus overcoming them, or make them acquiesce to peace”.(al-Māwirdī, 2004: 111-113).

Also, the well-known 7th-century Sunni Mufti explicitly announces, in his book *al-Hāwī al-Kabīr*, that: "You can throw snakes and scorpions or anything that causes them to die at the enemy" (al-Māwirdī, 1999: 184/14). That implies the justifiability of applying biological weapons in battle.

Nizām al-Mulk (408-471 AH) is another political Sunni thinker who seems to permit the use of biological weapons in his governing policies- like providing security- in his book *Sīyāsatnāme* (Book of Government). In one of

the anecdotes attributed to the Ghaznavī era, he points out that they killed the thieves and bandits by poisonous fruit (See: Tusī, 1999: 86-95, Mostowfi, 1947: 395). In its analysis, one can deduce that he brought up such an idea to advise or perhaps give permission to the Seljuk rulers for the use of biological weapons to eliminate the opponents.

However, it seems that the majority of Shiite jurists and thinkers of the Islamic Middle Ages have had different views from the Sunni scholars. For example, Sheykh Tusī (385-408 AH) or al-Koleynī-ye Rāzī (258-329 AH) have forbidden poisoning, cutting and burning the trees, or even flooding water toward enemies to drown them (Tusī, 1980: 177/6, al-Koleynī: 29/5). *Bihār al-Anwār* (Seas of Lights) which is, in fact, a collection of prior Shiite thinkers' thoughts, does not allow the usage of “poison” as a biological weapon against the enemies through the interpretation of the 102 verse of *Al-Baqhara*². The subtle point is that even this type of biological weapon is mentioned among magic and the denial of its application is expressed by the divine and

² And they followed [instead] what the devils had recited during the reign of Solomon. It was not Solomon who

disbelieved, but the devils disbelieved, teaching people magic.

prophetic words of Kuran. Finally, he also pointed out that "lest you kill someone by poison" (Majlisī: 270/3, 271). It is also an elegant point that the application of biological weapons even against infidels and polytheists is not allowed through the military procedure by the Shiite thinkers during the Islamic Middle Ages. As Ibn-i Zohreh (511-585AH), the first martyr (734-786 AH) and the second martyr (911-966 AH) affirm the point in their works, even as Fatwa (judgment). (See: the first martyr: 293/2, 294, Ibn-i Zohreh: 261, the second martyr 292/2)³.

C. Historical Background

The use of biological weapons in battle dates back to the early days of human history. Historical sources and documents have recorded many such instances in which sometimes the casualties of biological attacks greatly surpassed that of direct clashes on the battlefield.

Contaminating water sources using animal carcasses or dead soldiers' corps as an effective

military means is one such instance. Also, the use of biological agents included shooting the enemy with arrows contaminated with sick human blood or infected animal and human carcasses. (See: Barras& Greub: 498; LTC George: 412-413). Also, throwing dead horse carcasses into the castle to make those under siege sick is another instance of biological warfare. Moreover, throwing plague-infected corpses was another way of spreading the disease to reduce the enemy's military power and ultimately break their resistance (Metcalf: 272-273). Plague deaths have always been high, as recorded in historical sources. Furthermore, the psychological effects, thus the escape of some of the forces highlight the other aspect of using biological weapons battlefield. The outbreak of smallpox in the opposing corps presents another type of biological agents' function in the military arena. Similarly, the opposing sides used contaminated clothes to spread the virus and consequently the disease. (Mihrabī: 41-43, Sattārī: 25-27). The implications of the disease's outbreak in the

³ . It is noteworthy to mention that the contemporary Shiite scholars also emphasize that the use of biological weapons, even against infidels, is forbidden. Seyyed

Mohammad Sadr forbid the killing of infidels by fire, water, and poison (See: Sadr; 385/2).

opposing army would have been predictable: terror, the massacre of the forces and as a result the diminishing of the army's power and probably surrendering or defeat.

The history of the biological agents' function in ancient Iran is ambiguous⁴, which is due to the weak historiography and its oral feature. However, it has been concluded from the sanctity of water in Zoroastrianism contamination of water was not a common practice for annihilating rivals, and poisoning weapons and human beings were more conventional (Rāvandī, 2008: 495/1, 429). The study of mythical sources shows that the use of poisoned arrows was a recognized method of biological warfare, as mentioned in the story of Esfandyār and Sīmorgh, section five (See: al-Th'alībī: 146). Despite the usage of poison and toxic in the Achaemenid era (Plutarch: 210, 212, Tabarī: 784/2), a statement quoted from Xenophon indicates his critical approach to the biological agents of the time. Based on his report, the punishment for the prisoners was to

put their heads on a stone and smashed their heads with another stone to death (Xenophon: 12). Also, the murder of Artaxerxes III (425 – 338 BC) with poison by the supporters of Darius III (Sicily: 625), or the poisoning of Staterira, Artaxerhea's wife, by Parysatis confirm the use of the biological weapon at the time (Plutarch: 211). while Historical resources refer to Indian poison swords in the battle with Alexander and the massacre of the Macedonian armies, they also point out that Parthians in the battle of 53 BC, defeated the Roman army using poisonous arrows, which highlights the importance and influence of biological weapons in the military context. Such poisons were extracted from a specific type of snake and caused immediate death (See: Sicily: 776, Pirniyā, 1996: 1844/2). The narration of the Antiochus War with Ashk III in 209 reveals the use of biological agents for poisoning the wells along the way to exhaust the enemy troops (Pirniyā, 1996: 2210/3)⁵.

⁴ However, the scripts of ancient historians confirm the Iranians' concern about poisoning in various ways (See: Pirnia, 1996: 2847/4).

⁵ In addition to the examples mentioned in the Parthian era, there was a family suicide Mehrdad II Ashkani (124-

87 BC) using the biological agent of poisonous substance (See: Plutarch: 373, 378) and Farhad IV (2-37 BC) by his wife Thermoza or Mozza, the roman slave (Rajabi: 108/4).

Iran's military-political history during the Sassanid era is witness to another instance of applying biological agents. For example, Al-Th'alībī noted that Vahrez-e Deylamī, the commander of the Sassanid army, had used poisonous arrows to conquer Yemen. It is said that Shiruyeh was also killed by poison by his opponents. (See: Ferdowsī: 203/7). As noted before, the arid conditions of the Iran plateau provided a proper place for the multiplication of deadly animals like scorpions and poisonous snakes that were a kind of biological weapon for eliminating enemies. In another example of the Sassanid era, we can point out the usage of these weapons in conquering Nasibin by Shāpur I Sassanid (241-271 AD) (See: Gardīzī: 67). At the same time, poisoning food represented another way of biological wars during the Sassanid era. It is remarkable that Jābān, the Sassanid army commander, ordered his soldiers to poison the food, which represents the importance of this effective weapon at that time (Tabarī: 1493/4).

The military experience of ancient Iran, particularly the Sassanian, and in the case of using poisons was transmitted to the Islamic period through books and other writings. As one of these books attributed to Indian Canākyā, which is about warfare organization and "what is worthy for the king to know about ... poisons" (Malāyerī: 383/3).⁶ Although there are some exceptional cases of applying poisonous arrows in the early Islamic centuries (Spuler: 1994, 374/2), the use of poison to eliminate the political, military and religious figures was a known fact. The most important one is Tabarī's recount of a failed assassination attempt against the Prophet Mohammad, which was after the battle of Badr and the conquer of Khaybar (See: Tabarī: 988/3. 1149). Also, 'Abu Bakr, the first C'Aliph, was poisoned by one of the Jews of Khaybar (Ibid: 420/3), Mālīk al-Ashtar and Hassan ibn 'Ali were both killed with poison by Muawiyah's agents. (See: Mostowfi, 1985,196, 200). Khawarij were among those who allowed the use of poisonous weapons. However, using

⁶ Also, the book "al-Somum" (The Poisons) was translated from Sanskrit into Farsi at the time of Hārūn al-Rashid; in the second half of the 2nd century, which

represents the prevalence of biological agents at the time. (Malayeri: 64/4).

such weaponry against insiders would sentence them to death (Spuler, 1994: 33/1, 374/2). They inflicted severe damages and human casualties by poisoning the arrows. (See: Ibn Athir: 41/13). Other well-known examples include application of poisonous arrows by Khawārīj against Mahlab Ibn Abi Safreh (Ibid), the commander of Umayyad troops, and before that the assassination of ‘Ali Ibn ‘Abi Tālīb with a poisonous sword (See: Dinwari: 261, Ibn Athir: 219/10). The use of poison as a biological weapon has been common practice in the history of Islam and Iran, at the early Islamic years⁷. Many cases have been recorded in historical sources in which caliphs, sultans, or military commanders poisoned their political, religious, and military rivals. As an example, al-Mansur, the second Abbāsīd c’Aliph (136-157 AH), committed the massive massacre of the Alavīs by poison, just in one day in 134AH (Ibn Athir: 162/15). Indeed, the

majority of Shiite Imams were killed in the same way by Abbāsīd caliphs (See: Mostowfi, 1985, 205-206)⁸.

Poisoning the medical equipment like daggers dagger and bloodletting tools for eliminating the rivals was another use of biological weapons in the Islamic period. For example, Al-Monastir (247-248 AH) was killed with a poisonous dagger by his doctor (Ibn Athir: 278/17).

In addition to the mentioned cases, they used the poison of scorpion to conquer cities during conquests. As the use of poison by Muslim Arab troops is reported in the case of conquests of Kāshān and Levant provinces. The outcome that led to the conquest of the cities, implied the effectiveness of the biological agents (Moqhaddasī: 582/2; Khānd Mīr: 473/1). The use of biological weapons was effective in the conquest of Nusāybīn by ‘Abu Musā Asha‘ari. Thus, the Arab Army threw

⁷ Not only the use of biological weapons in military-political context were recorded in ancient time, early and middle Islamic ages of Iran, but also there are numerous sample at Safavi and Qajar era in Iran.

⁸. In addition to the mentioned cases, we can point out to the killing of Yahya Ibn Kh‘Alid with poison and by conspiracy of Hārūn Al-Rashīd C’Aliph (193AH- See: Sajjadi: 320), poisoning Hammed Ibn Abbas by Ibn

Forat- minister of Al-Muqtadir C’Aliph- (Ibn Athir: 181/19), the murder case of Sahvi C’Aliph Mahdi with poisonous pear by his maiden are among the remarkable examples of the biological weapons’ usage (Tabarī: 5143/12). Formerly, Marwan Ibn Hakam were killed by his wife with deadly poison (Dinvari: 330) or it is said that Umar Ibn Abdol-Aziz was killed by the opponents of Umayyad (Yaqubi: 273/2).

thousands of jars of soil and scorpion by a catapult to the city that caused killing, terror, and chaos among the inhabitants and finally led to the conquest of Nusāybīn. (See: Tatavi-Qazvīnī: 98/1). Biological weapons were also used in capturing Tabarīstan by the Arab armies during the Mansur caliphate period. The conquest of the famous cave or castle of Espahbod Khorshīd⁹, in the same way, is another famous example. After the resistance of about two years and seven months of confinement, the Arab invaders finally resorted to the biological weapon. Accordingly, infecting the castle water with the germs of plague, or recounted by another source, the cholera disease was on agenda, which finally led to the death of a large number of defenders and the captivation of the rest (See: Gilani: 43; Amolī: 59; Mar‘ashī: 13). The suicide of Al-Muqan‘na and his companions with poison also suggests that sometimes the captives poison themselves bail themselves out of trouble. As stated in Tarikh-e Bokhara, "at the end, He poisoned all the captives, even women and slaves, and they all die. And when

he had given drink to women, and all became dead" (Narshakhi: 286; Ibn Athīr: 305/15).

‘Abu Moslem Khorasani also resorted to biological agents in suppressing the uprising of Abdullah bin ‘Ali, which eventually were effective in his military success. According to Ibn Athīr, "He destroyed the surrounding of Abdullah’s army, corrupted them and threw corpse in their water ways to defeat Abdullah’s army. (Ibn Athīr: 98/15).

D. Functions of Biological Agents

1. Poisoning

Eliminating combatants and non-combatants people or enemies by poisoning them, regarded as one of the important functions of biological agents in the Islamic middle ages. To poison by biological agents for struggling and killing their opponents, were on Abbasid c‘Aliphs or Iranian kings’ agenda. Among early instances, we can point out to the murder of Tahir-e Dhul-Yaminayn (207 AH) that is said to be poisoned and killed by the conspiracy of Abbasid c‘Aliphate court. (See: Ibn Taqtatqi: 311-312). In the case of Amr ibn

⁹ Located in SavadKuh County in Mazandaran Province.

al-Layth's war with Rafi ibn Harssama, which ultimately led to the murder of Rafi in Khwarazm in 283 AH; It has been mentioned that Ahmed Ibrahim, the chief man of the servants, took revenge on the people of the city by poisoning the water that caused many people were killed there. Subsequently, cholera was also so effective (Aufi: 317/3-318). In addition to the mentioned examples, in the case of Qaznavian's act to kill the thieves with poisoned fruits(See: Tusi, 86-92), Hindu Shah Nakhjawani reported as the deeds of Adud al-Dawla (324-372 AH) that he sent poisonous fruit to bandits, ordered by the government to provide the security the roads (See: Nakhjawani: 229-228/1). Such examples indicate the use of biological agents in the military arena in Iran's history in the Middle ages. The Seljuk Turks were among the tribes who benefited from the mentioned agent to eliminate their rivals¹⁰. Amid power struggles and the first decades of the Seljuk rule, the uncle of M' Alik Shah, Qavurt, was ordered by the Sultan "to drink the venom"(Neysh'Aburi: 30) or as Ravandi narrates: "He ordered to

poison Qavurt and blind his two sons at night"(Ravandi: 127).

A number of Seljuk Sultans were doomed to be poisoned and killed. First, it is supposed that M' Alik -Shah's death (465-485 AH) was due to poisoning (Unknown author: 408). M' Alik-Shah Bin Mahmud (448-547 AH) is doomed to be poisoned and killed by the conspiracy of Oun al-Din Hafireh – the shrewd minister of Abbasid c'Aliphate (555 AH). According to Ibn Athir, the mentioned sultan threatened the C'Aliphate to interrupt a sermon with his Uncle's name, Suleiman-Shah, and read the sermon in his own name; otherwise, he would attack Iraq. Thus, Ibn Habireh purchased a beautiful maiden by his servant and sent her to M' Alik-Shah court. After a while, the maiden did their trick and "seduced M' Alik-Shah to eat the poisoned beef and killed him" (Ibn Athir: 81/27). It is said that Mahmud Ibn Mohammad was deceived by his minister, 'Abu Alghasem Dorgozini, and died of poisonous food (525 AH) (Bondari: 182).

Suleiman Shah (554-556 AH) was another Seljuk Sultan who died of biological weapons

¹⁰ For more information about poisoning the enemies in Turkestan, see: Ibn Athir: 19/22.

by his opponents. That is, the opposing emirs, under the command of Amir Gurdbasu, detained him, imprisoned, and finally poisoned and killed him in 555 AH. (Ibn Athir: 88/27; Neysh‘Aburi: 72, 73).

Sultan Mohammad bin M‘Alik-Shah Seljuk (498-511 AH) was under failed assassination. The poisoning of medical and sanitary equipment, such as dagger and bloodletting means shows another form of using biological weapons to eliminate the rivals in the history of the Islamic middle ages. It is said that Ismailia, with the help of S‘ad al-Malek Avuji – minister of Sultan, attempted to kill him with a poisonous dagger. However, the conspiracy revealed and it cost the life of Fasad with the very poisonous dagger (Neysh‘Aburi: 41, 42).

Patricide and fratricide among Roman Seljuk were as common as the Great Seljuk. As Kay Khosrow poisons his father, Kayqubad, and killed him (636 AH). Also, Rukn al-Din Suleiman poisoned and killed his brother, Kayqubad because he was afraid that Kayqubad would overwhelm him one day (Mustowfi: 477-478).

Occasionally, the use of the biological agent of poison in the assassination of the sultans has

failed. For example, Toqrul III realized the conspiracy of poisoning by his wife, Qatayba Khatun, and of course made her eat the poisonous food (588 AH), (Mustowfi: 468). In addition to the Seljuk sultans, the poisoning of the political-religious men's regiment has been on the agenda. As an example, Jamal al-M‘Alik ‘Abu Mansur (475 AH) Khaje Nizam al-Mulk's son was poisoned and killed on the orders of Sultan M‘Alik-shah. It is said that his servant pours poison into his jar. When his master woke up at night and asked for some beer, he drank and died at the moment” (Bondari Esfahani: 83). The death of Buri, the jurisprudent of Shafi, was also due to the poisonous pastry that one of the Hanb‘Ali's opponents sent to him (567 AH) (Ibn Athir: 17/28). Alp Arsalan was also poisoned with venom that the governor of Sur poured into his wine. Of course, his tactful doctor saved him from certain death (See: Mustowfi, 1985: 436). The use of poison in political retorts of the

Gurid and Mongol-Ilk Hani¹¹ ages also can be pursued. As Bahram-Shah Ghaznavi ordered to poison his son-in-law, Qotb al-Din Mohammad Guri, because of jealousy and paranoia (543 AH) (Jozajani: 336/1). Also, the murder of the Mongol disobedient princes by poison during the Hulagu Khan, as well as the dispersal of their armies, has also been reported (Boil, 332/5). Apparently, accusing others in case of using poison against others was so common that implies a heavy charge. As a remarkable instance, the opponents accused Rashid-al-Din Hamadani of poisoning

Oljeitu Sultan. Therefore, under the command of Sultan 'Abu Said, he and his son, who were the caretakers for the winery of the court, were murdered in the worst case (718 AH) (Tatavi-Qazvini: 4406/7). /eventually, some resources noted that Oljeitu was killed by poison (Spuler, 2007:122). Poisoning and killing M'Alík Shams al-Din Mohammad, the ruler of AL Kurt seems to be done by the hint of Abaqa Khan (663-680) in 676 AH (Zamchi Asfazari: 421/1); that can be analyzed in the

same way. Jalāl al-Din Hassan Nomosalmān- an Ismailia Imam- was also poisoned and killed by his wives and sisters (618 AH). It seems that the ideological change of the Ismaili during his pontificate period can't be irrelevant to his death (Mustowfi, 1995:525).

In the later periods of Iran history, we also see the use of poison for the political elimination of the opponents. As Amir Mo'ez al-Din Esfahān-Shāh, one of the Muzaffarids emir, was killed by a poisonous syrup (785 AH) (Tatavi-Qazvini: 4760/7). Amir Pir Hosseyn, who was poisoned and killed by his cousin, Sheykh Hassan Chupāni, shows another aspect of using biological agents in the political-military context (742 AH) (Eqbal Ashtiani: 417).

2. Damaging Weapons and Equipment of Enemy

The epidemics of cholera and plague, alongside wars and constant conflicts, raids, and massacres, reflect in the historical past and were essentially considered among common

¹¹ The remaining miniatures from the Mongol era, exhibit some arcs whose arrows were equipped with poisonous bones. Schimmel: 98.

phenomena in Iran history (Grantovski: 308, Ravandi: 696/5). Biological agents such as plague and cholera in the medieval history of Iran were so horrific that they recognized it as "war"; as Kermani said: "war has a dream about the plague and vice versa" (Razi: 381). Polluting the enemies' equipment such as water or filling water wells represents another kind of biological agents' application. Historical sources refer to many examples in this regard. For example, while Qarmatians were engaged in war and pursuits, Hamadani "whenever they came, they infected the water or filled the wells" so that the enemy could not use them. Eventually, it turned out to be an effective policy, Hamadani could not resist because there was no water on the way (Ibn Athir: 60/19). Also Qarmatians after pillaging the pilgrims and retreating to Aqaba, filled the wells and infected the water by throwing corpses into it. Indeed, they threw soil, dirt, stone, and corpse as much as they could, so that no one could pursue them (Ibid: 66/19). Contaminated drinking water was used repeatedly as an effective military weapon in the Sāmānid era. For instance, after Makan bin Kaki disobeyed

Amir Nasr Sāmānid and consequently Sāmānid troops' attack to Gorgan, he infected the water on their way as a military confrontation (Ibid: 81/20). 'Abu Ahmad Mohammad bin 'Ali Qazvini who rebelled against Amir Nuh Ibn Nasr (365-387 AH), infected and filled all the water resources so to avoid the progress of the Sāmānid army (Ibid: 179/20).

Historical sources mention the Ismaili's resort to these military weapons against Moguls. Rokn al-Din Khawje was appointed as a governor of Kerman by Ogedei Khan and sought to regain Tabas from Ismaili. So he started a battle. On the other hand, some of the devoted Ismaili missioned to infect all the wells which were around Rukn al-Din's camp with a box of poison and therefore killing his troops to cease his military action. Although the devoted men were arrested before any action was taken. However, it seems that the unexpected retreat of the Mogul army from the war in Tabas could not be irrelevant to their fear of the biological acts of Ismaili against them (Tatavi-Qazvini: 3916/6).

3. The Change of Military Balance and Enemy's Defeat

The use of biological agents in changing the military balance and finally the defeat of the enemy has been recognized as the most important issue of the Iranian government's military actions in the Islamic middle ages.

Accordingly, to damage the enemy's manpower, besides, to terrorize, could have been effective on the result of the war. For instance, Sultan Mahmud Ghaznavi (388-421 AH) resorted to biological weapons to conquer Sistan. That is, he did some tricks to start an attack on Sistan and fight with Khalaf – Amr ibn al-Layth's grandson- to poison his political representative in Khalaf court. Therefore, he found an excuse to attack the remained Saffarian's territory; the attack which led to the obedience and affiliation of Khalaf safari (Sykes: 35/2-36).

Before that, when 'Abu Mansur Tusi rebelled against Sāmānīd and confronted 'Abu al-Hassan Simjuri, before a fateful war – 'Abu Mansur became poisoned, apparently with the conspiracy of Simjuri by his doctor. Due to the

matter, he couldn't fight and was doomed to defeat and death (Gardizi: 356, 357).

At another point in the history of the Sāmānīd era, we also witnessed how the use of biological weapons changed the military balance. According to the reports of historical sources, the surround of Khalaf bin Ahmad Saffari in the UK fortress by the Sāmānīd army took three years¹² that is surprising for Sāmānīd military potency. To reveal the secret, It was said that Khalaf bin Ahmad constantly threw snakes and scorpions by the catapult at Sāmānīd camp. Consequently, the Sāmānīd army had to constantly change its position; that influenced the outcome and the failure of Sāmānīd (See: Ibn Athīr: 275/20; Hamadani: 21).

Also, resorting to poison and poisoning the opponents has affected the war's destiny In the Seljuk era. During a battle, Qavurt poisoned 'Abu K'Alijar Deylami, ruler of Kerman. Actually, the matter affected the military success of Qavurt and therefore led to the conquest of Kerman (440 AH). Since k'Alijar's army dispersed (Khabisi: 33; Ayati: 162).

¹² Jarfazaqani considered the period as seven years-1995:44.

The unsuccessful assassination of Mohammad bin M'Alkshah with poison and by his own minister's conspiracy, Sa'id al-Malak Auwi in order to escape Ismaili from the Seljuk army's blockade did not actually realize (Neysh'Aburi: 41,42).

The seizure of Ajereh in India of India was also done by Shahb al-din Ghuri by resorting to the biological agent of the poison. So that by the seduction of Sultan Ghuri, the ruler's wife poisoned her husband and consequently, the city was captured (Ibn Athir: 230/26).

Resorting to the strategy in the Mogul era had been documented in historical sources. Mozzafar al-Din poisoned his father, Malak al-Saad who bravely defended Mardin against the surrounding of Hulagu army for six months. Thus, the military balance changed for Mogul's benefit and they could finally conquer the city (Khānd Mir: 100/3).

When 'Abu Sa'id – the last Mogul Illkhan – was poisoned by his wife, Baqdad Khatun in 736 AH; the political life of the Ilkhanid government was practically over. Since a chain of power struggle surrounded their territory (See: Ibn Batuta: 280/1, 282). We can trace the usage of snakes and poison as biological

weapons during the Timurid era. According to historical reports, during Taimur's attack on India, his enemies tried to disturb his camp by sending poisonous snakes (Briant: 313-314). The deliberate outbreak of Cholera in the Seljuk era indicates the role of a biological weapon in changing the military balance and overwhelming the enemy. Following a report on Sultan Arslan bin Toqril's attack on Abkhazia (556-571 AH), Zahir al-Din Neysh'Aburi noted that because of cholera that is likely to spread by their enemies, "hundreds of people perished". The fate of the war was also predictable. The Seljuk army was defeated and retreated. According to Neish'Aburi's narration: Abkhazians were looting, burning and ruined his city" (Neysh'Aburi: 81-82).

Formerly, this biological weapon also presented itself in the defeat of the Ibrahim Yanal army's attack on the city of Zur in 440 AH. Actually, the disease was so severe that many Seljuk armies died of it. To analyze the event, it is supposed that during the surrounding of the city, cholera was used as military combat by the captives against the mentioned army. The result of resorting to this biological agent was also clear: A shift in

military balance and ultimately, the withdrawal of the Seljuk army (Ibn Athīr: 249/22).

Iran's history in the Mogul era represents another aspect of the biological weapon's usage in the military arena. In this regard, the prevalence of microbial diseases such as plague and cholera among the captives can be examined both optionally and compulsorily. Optionally, this is because the agents themselves have directly contributed to the spread of disease in the dominated and blockade areas. Compulsorily, the outbreak of the disease among the captives was not the captor's deeds or did not play a direct role in it. Sometimes the sources don't contribute us to realize that whether the prevalence of the disease among dominated groups were from the dominant group or the disease spread by itself.

However, that is the dominant group that benefited finally. So as by spreading disease among the enemy's army, the balance of the war changed in their favor. For example, the process of conquering castles and overwhelming other people accelerated. There

are some examples that Mogul was familiar with this strategy of battle. Thus, the biological factors alongside the natural disasters harmonized with the bloody sword of Moghul in the massacre of the people.

During the surrounding, the Mongols pursued two goals by placing the corpses along with the enclosed castles: firstly, to build a hill for climbing the walls. Secondly, to spread the epidemic disease in the castle to harm the military strength of the captives¹³. Historical resources confirm the exploitation of the Mongols from human corpses for the seizure of Darban Sharvan city approximately in 620 AH. (See: Ibn Athīr: 185/32). The siege of the Kharandar fortress by the Mongols was also ultimately broke out by the outbreak of cholera. Although the sources do not mention the causes and origins of the disease, they implied the shift in the balance of power in the military conflict caused by the outbreak of the biological weapon. As Nassavi, who lived in the very period, said: "In that castle, there was a cholera disease, and all the people of the country passed away, and the corpses would

¹³ Of course, one should not ignore the effects of psychological and promotional effects of the prevalence

of microbial diseases and finally its impact on the fate of the war.

have been brought out several times in a day from the castle until the city was empty of people (Nasavī: 59). After nineteen months of resistance against the Mughal Army, the castle of Sistan faced the same fate. Cholera was prevalent in the castle and thus, the Mongols managed to win over the castle's inhabitants (Safa: 61/3-62). After a year of resistance to the Mongols, Lanbeh Sar fortress of the Ismaili was also surrendered, due to the outbreak of the mentioned disease and its subsequent destructive consequences (Tatavī-Qazvīnī: 3958/6; Pirnia and Ashtyani: 486).

Similarly, the use of a biological agent for the elimination of the Mongol princes opposing to Hulagu caused the dispersal of their armies that contributed to stabilizing the position of Hulagu in the struggle for power (Boyle: 332). Of course, one should not ignore the fact that sometimes microbial agents spread among the attackers themselves, which could change the balance of war and result adversely. As the loss of manpower, escape or retreat of the troops could have been the inevitable consequences of the involvement of microbial agents in military scenes. For instance, a large number of Yaqhub ibn Layth's

troops (265 AH) were killed off the plague during their invasion of the 'Alavi in Tabaristan. Subsequently, Sultan Saffari had to retreat to Sistan for renewing the military (See: Tabarī: 6442/15; Sykes: 22/2). The Russian invasion of the northern part of Iran in 332 AH ended in tragedy. Since cholera became an epidemic among them (Miskawayh: 97/6). Also, 'Abu al-Abbas, the disobedient Sāmānid amir, suffered from severe cholera; as according to Ibn Athīr: "most of his companion died" (377AH) (Ibn Athīr: 149/21). Meanwhile, the outbreak of cholera among the horses of the 'Abu Kalaijar Deylami army and thus the loss of a large number of them prevented him from attacking Ibrahim al-Nayal, who had pillaged some part of his territory (438 AH) (Tatavi- Ghazvini: 2244/4).

Through the invasion of the Mongols in Samarkand and the siege of the city, by the spread of cholera and plague among their horses caused significant losses. In this way, some Mongolian troops were killed, which led to the liberation of the city (Hafiz Abru: 346/1; Samakandī: 351/3). The resistance of Khwarazmian to the Mogul army in Sistan had also fallen by cholera outbreak (See: Tatavi-

Qazvini: 3807/6). Also, Tarikh-e Vassaf pointed out the air pollution and as a result, Genghis armies got sick in Beneh Kahur (Ayati: 302).

Finally, we should note the prevalence of cholera among the jatteh invader army to Samarkand in the first years of Taimur's empowerment (See: Yazdi: 319/1). Also by spreading cholera among the defenders, the conquest of the Kalat castle led to the surrender of the Teimur's troops (See: Sykes: 175/2).

4. The Annihilation of Plants and Animals

Damages or sometimes the destruction of the plants and animals present another type of biological agents' usage in the military arena. Unfortunately, the matter has been mentioned just for few times in historical sources. However, by Mongol invasion of Iran's geography, there have been remained remarkable examples of the case. Similarly, cutting trees, filling gutters or turning them into swamps, filling water wells or even poisoning them, destruction of the depots and water distribution networks had been done, to analyze such actions alongside with the several factors, one can mention Mogul as desert

nomads with a negative attitude towards urban and rural life (Grousset: 250-251).

5. Terrorizing and Morale-Breaking

Along with the results and implications of using biological weapons, its psychological aspects in the past and even the contemporary era should not be overlooked. Indeed, sometimes these aspects can be beyond the material ones. Since the fear and nervous pressure resulting from the use of biological agents, particularly among the civilians and even a military one, can have very destructive and negative psychological effects in weakening the morale that cannot be underestimated (See: Sattāri: 20, 38). Historical instances of the Saffari era confirm the application of the biological agents. According to Ibn Athīr in 354 AH, Khalaf- the ruler of Sistan – applied different biological weapons including snakes in the battle with Amir Mansur I Sāmānid (350-365 AH) which caused terror and morale-breaking among Sāmānid troops (Ibn Athīr: 275/20).

Conclusion

The history of military developments in the middle ages of Iran indicates the fact that the use of biological weapons has a significant status in the intellectual system of its players. The advancement of military-political goals according to the elimination and weakening of the opposition made the use of such weapons inevitable. The privileges of biological weapons, along with ideological justifications and promotions from some of the governmental thinkers of the period, resulted in the acceptance of biological weapons as a military means. In addition to the material-human harms of biological weapons in military fields, there is no doubt that the promotional aspect and psychological burden of spreading

microbial agents could not have fewer consequences than the material ones. To create terror and finally chaos regarded as the least result of releasing news about microbial diseases. In many cases, the shift in war balance, the withdrawal or ceasing the conquests and wars as a result of damaging the weapons and equipment, and even the change in the fate of the battle, all can imply the effect of using biological agents in the military arena in middle ages of Iran. Also, the elimination of big shots by contaminating them with microbial agents is another field of microbial weapons' usage in the political and military context which confirms the very period of Iran history.

References

- [1] *The Holy Quran*, Al-Baqare surah.
- [2] Sattāri, Morteza (2004). *Moghadameh bar Avamel-e Bacteriae Bioterorism Microbi va Karbaran Tarikhi An*, Tehran: Nashr Sazman basij-e Asatid.
- [3] Sykes, Sir Percy (2001). *History of Persia*, Vol. 2, translated by Mohammad Taqi Fakhri Da'ii Gilani, Tehran: Afsun.
- [4] Aafi, Sadid al-Din Mohammad (2007). *Matn-e Enteghadi Javameh al-Hekayat, a Lavameh al-Revayat*, Vol3, Edited by Amir Banoo Mosafa va Mazaher Mosafa, Tehran: Pazhuheshgah Olum-e Ensani va Motale'at Farhangi.
- [5] Ferdowsi, 'Abu-al Ghasem (1974). *Shahnameh*, Vol.7, Tehran: Sherkat-e Sahami Ketab-ha-ye Jibi.
- [6] Gardizi, abi Sa'id ab-dol- Hay bin al-Zahak bin Mahmud (1984). *Zayyen al-Akhbar*, Tehran: Donya-ye Ketab.
- [7] Gilani, Molla Sheikh 'Ali (1973). *Tarikh-e Mazandaran*, Tehran: Bonyad-e Farhang-e Iran.
- [8] Grantovski, E,A and Others (1980). *Tarikh-e Iran az Zaman-e Bastan ta Emruz*, Translated by Kay khosrow Keshavarzi, Tehran: Puyesh.
- [9] Hamadani, Rashid al-Din Fazl Allah (2007). *Jame al-Tavarikh*, Tehran: Miras-e Maktub.
- [10] Ibn al-Athir, Izz al-Din 'Ali: (1992). *The Complete History of Islam and Iran*, Vol.10, 13, 15, 20-22, 26, 27, Translated by Abbas Kh' Alili, Abolghasem Halat. Tehran: Entesharat Elmi.
- [11] Kulayni Razi, 'Abu Jafar Mohammad bin Yaqub (1987). *Al-Kafi*, Vol.5, Tehran: Dar al-Kotob al-Eslamyat.
- [12] LTC George W. Christopher (1997). "Biological Warfare: A Historical Perspective". *JAMA*. 1997;278(5):412-417.
- [13] Majlisi, Mohammad Bagher bin Mohammad Taghi (1972). *Aseman va Jahan: translation of al-Sama va al-Alam Behar al-Anvar*, Vol 54, translation by Mohammad Bagher Kamareyi, Tehran: Eslamiyeh.

- [14] Mar'ashi, Zahiraldin (1966). *Tarikh-e Tabarestan va Ruyan va Mazandaran*, Edited by Mohammad Hussein Tasbihi, Tehran: Sharq.
- [15] Mawardi, 'Abu-al Hassan 'Ali bin Mohammad (1999). *Al-Hawi al-Kabir fi Ghesm Mazhab al-Imam al-Shafai'I*, Vol.14, Beirut: Dar al-Kotob al-Elmiyeh.
- [16] Mawardi, 'Abu-al Hassan 'Ali bin Mohammad (2004). *Ayin-e Hokmrani*, Translated by Hussein Saberi, Tehran: Elmi va Farhangi.
- [17] Metcalfe, Neil (2002). "A short history of biological warfare", *Medicine, Conflict and Survival*, 18:3, 271-282, DOI: 10.1080/13623690208409635.
- [18] Moghadassi, 'Abu-Abdollah Mohammad bin Ahmad (1982). *Ahsan al-Taqasim fi Marefat al-Aq'Alim*, Translated by 'Ali Naghi Monzavi, Tehran: Sherkat Moalefan va Motarjeman Iran.
- [19] Mustowfi, Mohammad Hassan (1996). *Zobdat al-Tavarikh*, Edited by Behruz Gudarzi, Tehran: Bonyad-e Moghufat Mahmud Afshar.
- [20] Narshakhi, abi Bakr Mohammad bin Jafar (1984). *Tarikh-e Bokhara*, Tehran: Tus.
- [21] Nasavi, Shab al-Din Mohammad (2005). *Sirat-e Jala al-Din Monkabrani*, Tehran: Elmi va Farhangi.
- [22] Neysh'Aburi, Khawjeh Imam Zahir al-Din (1953). *Seljuk Nameh*, Tehran: Khavar.
- [23] Sadr, Mohammad (1993). *Mavara-al Feqh*, Vol.2, Beirut: Dar al-Azva.
- [24] Safa, Zabih Allah (1999). *Tarikh-e Adabiyat dar Iran*, Tehran: Ferdows.
- [25] Sajjadi, Sadegh (2006). *Tarikh-e Barmakian*, Tehran: Bonyad-e Moghufat-e Mahmud Afshar.
- [26] Samarkandi, Kamal al-Din Abdo-al-Razaq (2004). *Matla-e Sa'dayn va Majma-e Bahrayn*, Vol.1, Edited by Abdu-al Hussein Navaie, Tehran: Pazhuheshgah-e Olum-e Ensani va Motale'at-e Farhangi.
- [27] Schimmel, Anne Mary (2007). *Dar Qalamru-ye Khanan-e Mogul*, Translated by Faramarz Najd Same'ii, Tehran: Amir Kabir.
- [28] Shahid Aval, Mohammad bin Ameli (1997). *Al-Durus al-Shariat fi Feghh al-Imameyat*, Vol.2, Qom: Moasseseh Nashr Eslami.
- [29] Shahid Saani, Zein al-Abedin bin 'Ali Jabai (1999). *Ruzat al-baheyat, Ketab-e Jihad*, Vol2, Njaf: Jame'at al-Najaf.
- [30] Siculus, Diodorus (2005). *Iran va Shargh-e Bastan dar Ketabkhaneh-e Tarikhi*, Translated by Hamid Bikas va Esmail Sangari, Tehran: Jami.
- [31] Tabari, Mohammad bin Jarir (1996). *Tarikh-e Tabari*, Vols. 2-4, 12, Translated by 'Abu al-Ghasem Payandeh, Tehran: Asatir.
- [32] Tatavi, Ghazi Ahmad - Asef Khan-e Ghazvini (Undated). *Tarikh-e Alf*, Vols. 3,4,7,6, Tehran: Elmi va Farhangi.
- [33] Tusi, 'Abu Jafar Mohammad bin Hassan (1980). *Al-Nahayat fi Mojarad al-Feqh va al-Fatavi*, Vol. 6, Beirut: Dar al-Kotob al-Arabi.
- [34] Tusi, Nizam al-Mulk (1999). *Seyr al-Muluk: Syasat-Nama Khawjeh Nizam al-Mulk*, edited by Hubert Dark, Tehran: Elmi va Farhangi.
- [35] Unknown Author, *Majmal al-Tavarikh va al-Ghesas*, Edited by M'Alak al-Sho'ara Bahar va Behjat Ramezani, Tehran: Kalaleh Khavar.
- [36] V. Barras, G. Greub (2014). "History of biological warfare and bioterrorism", *Clinical Microbiology and Infection*, Volume 20, Issue 6, Pp. 497-502.
- [37] Xenophon, (2007). *Kurush Nameh*, Translated by Reza Mashayekhi, Tehran: Elmi va Farhangi.
- [38] Yaqubi, Ahmad bin abi Yaqub (1992). *Tarikh-e Yaqubi*, Translated by Mohammad Ibrahim Ayati, Tehran: Elmi va Farhangi.
- [39] Yazdi, Ashraf al-Din 'Ali (2008), *Zafar Nameh*, Vol1, Tehran: Ketabkhaneh, Muzeh va Markaz Asnad Majlis Shuraie Islami.
- [40] Al-Tha'alibi, 'Abu Mansur Mohammad Ibn Ismail (2005). *Shnameh-ye Tha' Alibi*, Translated by Mahmud Hedayat, Tehran: Asatir.
- [41] Amoli, Ulia Allah (1969). *Tarikh-e Ruyan*, Tehran: Iran Cultural Foundation.
- [42] Ayati, Abdolmhammad (2004), *Tahrir-e Tarikh-e Vassaf*, Tehran: Institute for Humanities and Cultural Studies.
- [43] Bertold, Spuler (2007). *History of Mogul*, Translated by Mahmud Mir Aftab, Tehran: Elmi va Farhangi.
- [44] Boil, J. A., (1992). *Tarikh-e Dudemani va Siasi-ye Ilkhanan*, The Cambridge History of Iran, Vol. 5, Translated by Hassan Anousheh, Tehran: Amir Kabir.
- [45] Bondari, Esfahani, Fath-Ibn-e 'Ali (2536). *Tarikh-e Selsele-ye Saljuki*, Translated by Mohammad Hossein J'Alili, Tehran: Iran Cultural Foundation.
- [46] Dinvari, 'Abuhanifeh (2004). *Akhbar al-Tawal*, Translated by Mahmud Mahdavi Damqani, Tehran: Nay.
- [47] Eghbal Ashtiyani, Abbas (2005). *Tarikh-e Moghol*, Tehran: Amir Kabir.
- [48] Ibn- Battuta, Shams-al-Din Abi Abdollah Mohammad (1997). *Safar Nameh*, Vol.1, Translated by Mohammad 'Ali Movahed, Tehran: Agah.
- [49] Ibn Taqtaqi, Mohammah Ben 'Ali Ben Tabataba (1981). *Tarikh-e Fakhri*, Translated by Mohammad Vahid Golpayegani, Tehran: Bongah-e Tarjomeh va Nashr-e Ketab.
- [50] Ibn Zohreh, Hamzeh Ben 'Ali (1993). *Feqh-e Estedl'Ali*, Translated by Mehdi Anjavi Nejad, Mashhad: Ferdowsi University of Mashhad.
- [51] Jarfa Zoqani, 'Abu Al-Sharaf Nasseh Ibn Zafar (1995). *Tarikh-e Yamini, Tahghigh-e Jafar Shoar*, Tehran: Elmi va Farhangi.
- [52] Jozajani, Menhaj Al-Din Seraj (1984). *Tabaght-e Nasseri*, Vol1, Edited by Abdol Hay-ye Habibi, Tehran: Donya-ye Ketab.
- [53] Khabisi, Mohammad Ibn Ebrahim (Undated). *Saljukian va qoz dar Kerman*, Edited by Mohammad Ebrahim Bastani Parizi, Tehran: Tahuri.
- [54] Marcel, Brion, Manam (Undated). *Teimur-r Jahangosha*, Translated by Zabih Allah Mansuri, Tehran: Mostowfi.

- [55] Mehrabi Tavana, 'Ali (1999). "Estefadeh az Jang Afzarhayeh Microbi dar Tarikh", *Faslnameh Teb Nezami*, No 1,2, pp: 41-47.
- [56] Nakhjavani Mohammad bin Hindu Shah (1976). *Dastur al-Kateb fi Ta'ieen al-Marateb*, Vol.1, Edited by Abdi-al Karim 'Ali Ughli Zadeh, Moscow: Farhangestan Ulum.
- [57] Pirnia, Hassan; Ashtiani, Abbas Eghbal (2001). *Tarikh-e Iran Az Aghaz ta Engheraz-e Selsele-ye Qajar*, Tehran: Khayyam.
- [58] Plutarch (2001). *Iranians and Greeks narrated by Plutarch*, Translated by Ahmad Kasravi, Tehran: Jami.
- [59] Pour Dastgardan, Reza, *Danesh Name-ye Bioterrorism and Bioterrorism agents*.
- [60] Rajabi, Parviz (2002). *Hezare-ha-ye Gomshodeh*, Vol3, 4, Tehran: Tus.
- [61] Ravandi, Mohammad bin Suleiman (1985). *Rahat al-Sodur va Ayat al-sorur dar Tarikh-e Seljuk*, Tehran: Amir Kabir.
- [62] Ravandi, Morteza (2003). *Tarikh-e Ejtema'i Iran*, Voll, Tehran: Negah.
- [63] Razi, Fakhr al-Din Mohammad bin Umar (2006). *Khabgozari, al-Tahbir fi Elm al-Ta'bir*, Translated by Iraj Ashar, Tehran: al-Ma'ii.
- [64] Zamchi, Asfazari, Moein al-Din Mohammad (1959). *Ruzat al-Janani fi Usaf-e Madineh-ye Harat*, Voll, Tehran: Daneshgah Publication.



تاریخ دریافت: ۱۳۹۹/۷/۱۳

تاریخ پذیرش: ۱۴۰۰/۵/۲

تاریخ انتشار: ۱۴۰۰/۱۰/۱۱

سلاح‌های بیولوژیک و کارکردهای آن در سده‌های میانه تاریخ ایران

امامعلی شعبانی^۱ ID، علی زارعی^۲ ID، رضا محمدی^۳ ID

^۱ دانشیار تاریخ، گروه تاریخ دانشگاه مازندران، مازندران، ایران.

E-mail: e.shabani@umz.ac.ir

^۲ دانش‌آموخته دکتری تاریخ، پژوهشکده امام خمینی و انقلاب اسلامی، تهران، ایران. مدرس گروه معارف اسلامی دانشگاه علامه طباطبائی (نویسنده مسئول).

E-mail: ali.zareei@chmail.ir

^۳ دانشجوی دکتری تاریخ، گروه تاریخ دانشگاه بوعلی سینا، همدان، ایران.

E-mail: reza.muhammadi90@gmail.com

چکیده: استفاده از عوامل زیستی یا به مفهوم امروزی تسلیحات بیولوژیک جهت حذف و درهم کوبیدن دشمنان و گروه‌های رقیب از مسائل مهم در جنگ‌ها به‌خصوص در دهه‌های اخیر بوده است. تاریخ تحولات سیاسی ایران در سده‌های میانه اسلامی نیز شاهد به‌کارگیری عوامل بیولوژیک، به‌عنوان سلاحی جهت نیل به اهداف گوناگون سیاسی - نظامی است. لذا پژوهش حاضر به شیوه تبیین تاریخی کوشیده است به این پرسش اصلی پاسخ دهد که عوامل بیولوژیک چه جایگاه و کارکردی در عرصه تحولات سیاسی و نظامی سده‌های میانه تاریخ ایران داشته است؟ یافته‌های پژوهش حکایت از آن دارد که علاوه بر برد تبلیغی و در نتیجه تضعیف روحیه مخالفان، سلاح‌های بیولوژیک توانسته است موازنه قدرت را در عرصه نظامی تغییر داده و بر شکست‌ها و پیروزی‌ها مؤثر واقع شود. در همین زمینه آسیب به سلاح و تجهیزات دشمن با عوامل بیولوژیک و حذف چهره‌های شاخص عرصه دیگر تاثیرگذاری سلاح‌های میکروبی در زمینه‌های نظامی و سیاسی است که سده‌های میانه تاریخ ایران صدها نمونه از آن را ثبت کرده است.

واژه‌های کلیدی: عوامل بیولوژیک، سلاح‌های میکروبی، کارکردهای نظامی، سده‌های میانه اسلامی، تاریخ ایران.