American Journal of Bioterrorism, Biosecurity and Biodefense

Open Access

Austin Publishing Group

Editorial

Bioterrorism and the Common Biological Agents used as Bioweapons

Sylvia Angubua Baluka*
Department of Biosecurity, Makerere University, Uganda

***Corresponding author:** Sylvia Angubua Baluka, Department of Biosecurity, Ecosystem and Public Health, College of Veterinary Medicine, Animal Resources and Biosecurity, Makerere University, P. O Box 7062, Kampala, Uganda

Received: March 27, 2015; **Accepted:** March 27, 2015; **Published:** March 30, 2015

Editorial

In the face of increasing incidents and threats of terrorism, we must not ignore bioterrorism. Many potential terrorists are aware that countries are increasingly investing in security particularly against chemical weapons which makes Bioweapons an attractive option. Bioterrorism is the use of biological agents in an act of terrorism. Bioweapons are naturally occurring microorganisms and toxins generally of microbial, plant or animal origin although they may be human modified, that are intentionally used to produce disease or incapacitation or to cause death in humans, livestock or crops as an act of war or terrorism.

Bacillus anthracis (which causes anthrax) is considered the best bacterial agent for bioterrorism because of the high stability of its spores in the environment and ease of production which attributes account for its greatest strength as a bioweapon. The spores are also resistant to desiccation, heat and ultraviolet light. Bacillus anthracis can be isolated and cultured in large quantities easily using relatively simple equipment and culture media. Bacillus anthracis produces large quantities of spores which can remain viable in the environment for many years. Inhalation and possibly gastro-intestinal forms are associated with a high case fatality rate. Other Bioweapons include *Clostridia botulinum* spores, small pox, Tularemia, Plague and viral hemorrhagic fevers that can easily spread and cause high death rates.

More recently mushroom toxins or spores have been considered among possible Bioweapons because they possess properties that make them good candidates for Bioweapons. Mushrooms do not respect national boundaries; mushroom spores can spread hundreds if not thousands of miles on air currents, fungi can be unintentionally introduced into new places when new plants are imported into a new geographical area. For instance the poisonous Amanita species are believed to have been accidentally introduced into South Africa on trees that were imported from temperate countries.

Like *Bacillus anthracis* and *Clostridia botulinum* spores, mushroom toxins or spores are heat resistant, stable and can persist for long periods in the environment, are ubiquitous i.e. widely distributed throughout the world in different climates and zones? However, although mushroom toxins meet the above criteria for Bioweapons to a greater extent they might never be good Bioweapons like Clostridia botulinum or Bacillus anthracis because no mushroom is dangerous to touch or handling. Poisonous mushrooms are poisonous when ingested.

Bioweapons possess some or all of the following properties that make them attractive to potential terrorists.

- They are naturally distributed and can be easily obtained. That is, terrorists can easily access a wide range of disease producing biological agents or pathogens or toxins.
- Production costs for Bioweapons are much lower compared to the cost of manufacturing chemical or nuclear weapons. Production of Bioweapons does not need specialized equipment for production and there is a probability of large scale production.
- Bioweapons are Odorless (no smell), colorless and are difficult to detect or they are not detected by routine security systems.
- Bioweapons are associated with ease of distribution or dissemination i.e. they are easy to transport from one place to another.
- Bioweapons are associated with high morbidity and mortality thus they are capable of causing more casualties. Only a small infective dose can induce large outbreaks within a susceptible population. Hence fewer amounts are effective as compared to chemical agents.
- Bioweapons may be distributed as aerosols, sprays, explosive devices, or by food and water.
- Many Bioweapons have short incubation periods and are capable of person-to-person or easy transmission or dissemination once introduced in the environment.
- Bioweapons have the potential to cause anxiety among healthcare workers and in the general public.
- There are limited or no available effective vaccines against Bioweapons.

In the absence of conventional biosecurity measures, each one of us can contribute towards our own biosecurity and that of others writing our environments by taking precautions. For instance, we should not eat food or take drinks given by strangers, not accept custody of documents or luggage from strangers etc.

Citation: Baluka SA. Bioterrorism and the Common Biological Agents used as Bioweapons. American J Bioterror Biosecur Biodefens. 2015;2(1): 1005.