

Biosafety and Biosecurity Square Measure Progressively Necessary in Varied Biological Fields

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Abstract

Biotechnology became a paradigm-shifting science among all subfields of biology. The advantages of biotechnology have reached several sensible fields, whether or not human health, animal, and/or agricultural. However, where there's a biotechnology follow, there's an associated biohazard with it, and its negative impact could reach all living entities as well as humans. Therefore, the cooperation of the leading establishments during this field has culminated in making the ideas and applications of safety and biosecurity. The countries of the center East square measure thought-about biotechnology-practicing and have shown a transparent acceptance to the current field. However sadly, the center East region is one that's facing the foremost multi-challenges, which might represent real and noticeable concern at the native and international levels. Such challenges portrayed by wars and armed conflicts, deteriorating economic conditions, the big range of refugees, and also unfold of the many epidemics. Thus, limiting the region's ability to handle the encompassing biological hazards and troubled the thanks to the one health idea. Therefore, this text aims to shed light on the activities of the center East countries within the field of biotechnology and to deal with potential biological threats, whether or not natural like the unfold of viruses, or intentional like biological attacks and terrorism.

Keywords: Parasites; Plasmodium; Palestine; Biohazards

Introduction

The article conjointly shows the capability of the countries of the region within the field of safety and biosecurity supported accessible info. Consequently, some countries square measure lacking the specified level of readiness to face potential biological threats. Multi-institutional and international cooperation between the involved countries can considerably enhance the capability of the region in safety and biosecurity to satisfy the amount of biological risk.

The Middle East region doesn't have clearly outlined geographic borders. Rather, the term is employed to sit down with a cultural space. Looking on the context, geographical region countries could embrace Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Kingdom of Saudi Arabia, Syria, Turkey, United Arab Emirates (UAE), and Asian nation. It's necessary to avoid confusion between the center East region and also the geographic area and geographical region (MENA) region that geographically extends to incorporate Democratic and Popular Republic of Algeria, Djibouti, Libya, Morocco, Sudan, Tunisia, and typically further countries. A considerable range of geographical region countries suffer from economic and political challenges. Economic challenges embrace a poor business climate, high rates of state, underdeveloped infrastructure, trade economic policy, and low levels of education. Political challenges embrace wars and armed conflicts occurring in multiple components of the region. These challenges could result in economic, social, and political instability and public health considerations, doubtless increasing the danger of infectious diseases and also the use of biological weapons. At identical time, several countries are thought-about to be biotechnology-practicing, and so exposed to the danger of biohazards related to biotechnology. For instance, some biohazards embrace laboratory-acquired infections in analysis or practice laboratories, during which handling moribund organisms is important seven. Additionally, varied chemical hazards square measure related to addressing deadly, corrosive, and agent substances in laboratories [1-3].

Moreover, info hazards represent a heavy risk issue that ought

to be thought-about in biotechnology-practicing countries, and disposition to assure information confidentiality is vital. Information privacy is needed to hinder the leak of biotechnology info containing the genetic codes of pathogens or experimental protocols for genetic modifications. For the explanations delineated on top of, safety and biosecurity square measure important for avoiding the negative impacts of biotechnology-associated hazards.

Biosafety and biosecurity square measure progressively necessary in varied biological fields, significantly with fast advancements in biotechnology science in recent years. Therefore, a large vary of definitions of safety and biosecurity square measure presently used, looking on the sector during which they're applied. However, safety usually refers to the procedures, measures, and actions adopted to forestall, limit, and avoid potential unpremeditated biohazards that threaten humans or the setting. The ideas and profession of safety were formed through multi-institutional cooperation and contribution.

Written laws in safety programs and coaching have resulted from joint conferences between pioneer establishments, like the U.S. Centers for sickness management and hindrance (CDC), the National Institute of Health (NIH), hospitals, universities, and alternative establishments within the field. However, the definition of biosecurity has evolved from describing the natural biological risks threatening environmental and agricultural components to incorporate the preventative measures against the intentional introduction of biological threats to humans

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or alternative living entities. Safety and biosecurity will be conjointly outlined because the capability of a rustic to handle and answer a specific biological risk. A country's response could embrace obstructive the unfold of infectious diseases, maintaining the security of laboratories, and preventing terrorism and biological weapons attacks.

Because the center east is facing the multiple challenges delineated on top of, measures of safety associated biosecurity ought to be enforced as an imperative priority. As a part of a world system, any potential public health problems that occur within the geographic area region can impact the remainder of the planet. moreover, the One Health idea proposes that 3 important components (human, animal, and ecological health) square measure mutually beneficial and can't be separated. Therefore, safety and biosecurity ought to be thought-about as enablers to achieving the goals of the One Health idea. The analysis of the center Jap region in safety and biosecurity within the current review indicated that some geographical region countries have the potential to forestall potential biological hazards. However, other countries within the region square measure inundated with multiple economic and political challenges that will forestall attention on upgrading their preventative capabilities. Additionally, monetary factors play a vital role in shaping the power of a rustic to implement safety and biosecurity measures. See sections four.1 and half-dozen for a lot of details [4-6].

Discussion

To the most effective of our information, no previous review articles have examined the biotechnology capacities and activities within the geographic area region. Additionally, there's a scarcity of analysis examining safety and biosecurity capacities within the geographic area. This is often the primary review to debate the follow of biotechnology in geographical region countries and also the associated demands for safety and biosecurity. This review conjointly discusses a variety of risk factors and biological threats, like extremely infectious viruses, mass gatherings, genetically changed organisms (GMOs), and also the potential for terrorism within the region. Additionally, the article evaluates the capability for safety and biosecurity within the region on the idea of current risk factors highlight the importance of international cooperation, this review aims to encourage countries within the region to boost their safety and biosecurity capacities.

Biotechnology refers to the utilization of science to utilize living organisms or their merchandise for human profit. Biotechnology includes the creation of merchandise or finding issues by implementing varied technologies which will be applied to biological entities. Humans have applied biotechnology practices for hundreds of years. Ancient biotechnology applications embrace fermentation for creating dairy product and selective breeding for up placental mammal and crops. Trendy biotechnology has developed to incorporate the genetic modification of living organism's victimisation recombinant deoxyribonucleic acid technology. The primary no-hit production of human macromolecule victimisation recombinant deoxyribonucleic acid technology was applied to the assembly of human endocrine in microorganism, providing another supply for endocrine production instead of animal tissues. Gene-splicing conjointly contributed to fighting several infectious diseases by manufacturing recombinant vaccines. Such vaccines utilize animal virus vectors secret writing the factor sequence of microorganism antigens and may be delivered safely via nasal spray.

Fast large-scale production of vaccines is needed to satisfy international demand. Polymer vaccines vie a important role in providing high-volume production of vaccines and economical protection against the 2019 coronavirus sickness pandemic. In recent

years, medical biotechnology has drastically improved health science by facultative innovative and fast diagnostic and treatment techniques. These ways embrace enzyme chain reaction, microarray, light in place union, and organism antibodies. Such techniques might scale back the time needed for designation of infectious and genetic diseases to many hours, facultative fast response and treatment. Additionally, factor medical care and its meditative merchandise offer promising tools for treating varied recalcitrant diseases, significantly cancer. moreover, the potential of factor medical care is increasing apace due to intensive information and information gained from the approved clinical trials of factor medical care, and over one,800 trials are conducted so far . Curiously, the potential of gene-based applications can still grow with the invention of easy and low cost gene-splicing tools. For instance, the invention of clustered regulative interspaced short palindromic repeats might doubtless modify factor piece of writing quickly at a comparatively value low-cost.

The high-income countries within the geographic area embrace the Gulf countries and Israel. The Gulf countries square measure the wealthiest nations within the region, and square measure thought-about to own wonderful attention systems. Between 1996 and 2013, more or less forty, analysis papers were revealed within the Gulf countries, several of that targeted on medicine and clinical analysis. The dominion of Kingdom of Saudi Arabia has devoted substantial attention to the medical application of biotechnology, as proved by the institution of the National Biotechnology Centre (NBC) during a collaboration between the King Abdul-Aziz town for Science and Technology and also the King Faisal in Abdel Aziz al-Saud Specialist Hospital and analysis Centre. Medical analysis in Kingdom of Saudi Arabia has primarily targeted on designation, the treatment of diseases, and pharmaceutical production. Kingdom of Saudi Arabia has conjointly used industrial biotechnology as associate addition to its economic base that's not supported drilling. Qatar's attention system has recently undergone a major transformation, and also the country has one amongst the best per-capita attention expenditures within the region. Biotechnology analysis has been powerfully supported in Qatar, as illustrated by the dedication of a USD\$19 million fund for this purpose [7,8].

Kuwait has incontestible substantial adoption of biotechnology since 1999, with yearly biotechnology outlay totaling \$5 million. The Kuwait Institute for (KISR) and Kuwait University have conducted biotechnology research in pollution management, plant sciences, and animal health. The annual expenditure of KISR for analysis and development activities, as well as biotechnology, ranged from \$200 to \$300 million within the 2016–2019 amounts. moreover, Kuwait has created substantial progress in utilizing biotechnology applications for the bioremediation associated biodegradation of oil-contaminated soil that created an environmental hazard once the Gulf crisis. In Oman, the appliance of biotechnology remains in its infancy However, some studies conducted in Asian country have targeted on the utilization of meditative plants that possess antimicrobial activity and square measure accustomed treat a range of diseases. To boot, antibiotic-producing microorganisms that were isolated in Asian country are used for medical functions. Curiously, recent publications from Asian country indicate an exploration specialize in marine biotechnology with the potential to boost economic diversification thirty five, 36, 37. However, promising future biotechnology applications in Asian country could embrace the assembly of prescribed drugs and medicine, waste bio mining, treatment, and bioremediation. The utilization of microorganism biotechnology seems to be a lot of rife in Bahrain. varied regionally isolated microorganism are examined in Bahraini studies examining the associated clinical signs, molecular characteristics,

infections, and antibiotic sensitivity thirty eight, Additionally, some studies in Bahrain have investigated totally different viruses in terms of their genotypes and also the clinical symptoms they cause [9,10].

Conclusion

An initial and necessary step in feat safety and biosecurity property is increasing the notice of the biological threats related to laboratory work or the misuse of biotechnology. Raising awareness will be useful for implementing safety and biosecurity ideas in any biotechnology-using country, broadening the power to spot and handle potential biohazards that aren't nonetheless recognized. Fortuitously, the notice of safety and biosecurity is already increasing in several countries within the geographic area. A cross-sectional study indicated that a complete of one, safety initiatives and programs were recorded across all countries within the BMENA region between 2001 and 2013. Of those initiatives, 1,295 aimed to unfold awareness of safety among researchers and laboratory employees. Among individual countries, the best range of initiatives within the geographic area was recorded by Jordan, followed by Asian country, Iran, and Egypt. Additionally, some countries within the region, like Jordan, have already integrated academic courses associated with safety, biosecurity.

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Conflict of Interest

The authors declare that there is no conflict of interest.

References

1. Dongsheng Z, Hongbin S, Jianwei W, Zhenjun L, Shuai X, et al. (2019) Biosafety and biosecurity. *J Biosaf Biosecur* 1: 15-18.
2. Ahmad T, Haroon K, Dhama K, Sharun K, Mehmood K, et al. (2020) Biosafety and biosecurity approaches to restrain/contain and counter SARS-CoV-2/ COVID-19 pandemic: a rapid-review. *Turk J Biol* 44: 132-145.
3. Rafael J, Dolores G, Elena F, María P, Garnacho M, et al. (2021) Intensive care nurses' experiences during the COVID-19 pandemic: A qualitative study. *Nurs Crit Care* 26: 397-406.
4. Summers J, Baribeau D, Mockford M, Goldhopf L, Ambrozewicz P et al. (2021) Supporting Children With Neurodevelopmental Disorders During the COVID-19 Pandemic. *J Am Acad Child Adolesc Psychiatry* 60: 2-6.
5. Monika T, Agnieszka D, Karolina B, Martyna B, Karolina P (2021) Air disinfection procedures in the dental office during the COVID-19 pandemic. *Med Pr* 72: 39-48.
6. Babu G R, Khetrpal S, Daisy A J, Deepa R, Venkat N (2021) Pandemic preparedness and response to COVID-19 in South Asian countries. *Int J Infect Dis* 104: 169-174.
7. Iaccarino A, Pasquale P, Elena V1, Philippe V, Giancarlo T (2021) Juggling the COVID-19 pandemic: A cytopathology point of view. *Cytopathology* 32: 299-303.
8. Maximiliano T, Francois T, Grant W, Sofia T, George D, et al. (2020) Update in COVID-19 in the intensive care unit from the 2020 HELLENIC Athens International symposium. *Anaesth Crit Care Pain Med* 39: 723-730.
9. Hamideh M, Fakhri A, Seyed N, Shokofeh R, Zahra R (2021) Cutaneous manifestations related to the COVID-19 pandemic: a review article. *Cutan Ocul Toxicol* 40: 168-174.
10. Luciane M, Gustavo Z, Crestani VC, Francisco R, Bianca LN, et al. (2021) COVID-19 pandemic and social distancing: economic, psychological, family, and technological effects. *Trends Psychiatry Psychother* 43: 85-91.