

features of substances. All the participants in the security chain have to be familiar with and consistently obey the legal regulations. The manufacturer must know the features of the hazardous substance, supervisory services must be acquainted with the threat and potential danger. The hauler and intervention forces must, in case of accidents and damage, be familiar with the emergency procedures in case of accidents and act properly regarding the threatening dangerous substance.

Key Words/ Phrases: danger, transport of hazardous substances, security

6. HAZARDOUS SUBSTANCES SHIPPING AT INLAND WATER HARBORS

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Safety measures and regulations system covering the aspects of fire protection, professional and ecological safety are aimed to create a safe working environment, by detection and remedy of conditions that are potentially hazardous for the wellbeing of the employees or are leading to certain undesired events. Such unwanted incidents may result in different consequences: operating person's injury, environment pollution or material damage.

This study attempts to illustrate the organization of work during hazardous matter loading and unloading at inland water harbors, based on legal provisions and decrees involving safety precautions, and in order to achieve constant enhancement of operating procedure, decreasing thereby the number of work-related injuries and various accidental situations.

Fundamental precondition required to prevent possible accidents and to optimize general safety policy is to recognize and control any danger or potential hazard, as well as to be familiar with the legal provisions covering the inland waterway transport of harmful substances.

Key Words/ Phrases: hazardous substances, inland navigation, inland waterways, loading, unloading



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professional associations. He speaks German and English language. Special education: certificate for ISO auditor.

7. THE CHARACTERISTICS OF EXOSPORIUM ANTIGENS FROM DIFFERENT VACCINE STRAINS OF BACILLIUS ANTHRACIS

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ABSTRACT

To develop of both test-systems for rapid detection and identification of *B. anthracis* spores and a new subunit vaccine the antigens on the spore surface should be characterized.

Exosporium consists of two layers-basal and peripheral and has been formed by protein, amino- and neutral polysaccharides, lipids and ash. Number of anthrax exosporium proteins was described and identified: glycoprotein BclA, BclB, alanine racemase, inosine hydrolase, glycosyl hydrolase, superoxid dismutase, ExsF, ExsY, ExsK, CotB, CotY and SoaA.

So far no glycosylated proteins other than highly immunogenic glycoproteins BclA, BclB were detected in the *B. anthracis* spore extract although several exosporium-specific glycoproteins have been described in other members of the *B. cereus* family- *B. thuringiensis* and *B. cereus*.

Although EA1 protein originally described as main component of S-layer from vegetative cells he can regular observed in different exosporium preparations and additionally some anti- EA1 monoclonal antibodies able to recognize spore surface. We have revealed that EA1 isolated from spore of Russian strain STI-1 contain carbohydrate which determine immunogenicity of this antigen. Because some time ago we have found that exosporium protein's pattern variable among *B. anthracis* strains we investigated exosporium from spore of different strains of *B. anthracis* including STI-1, Ames, Stern and others.

We have comparative characterized antigens by using Western Blotting, Two-Dimensional electrophoresis and Mass Spec analysis. The results of analysis will be presented and discussed.

8. THE SEARCH AND IDENTIFICATION OF NEW IMMUNODIAGNOSTIC TARGETS OF BACILLUS ANTHRACIS SPORE

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ABSTRACT

Spores of *Bacillus anthracis* have been used as biowarfare agent to bioterrorize purposes. As efficiency of anti-epidemic measures included urgent

prevention and treatment is determined by terms within which the bioagent is identified.

Direct and rapid spore detection by antibodies based detection system is very attractive alternative to current PCR-based assays or routine phenotyping which are the most accurate but are also complex, time-consuming and expensive. The main difficulty with respect to such kind of anthrax spores detection is a cross-reaction with spores of closely related bacteria. For development of species-specific antibodies to anthrax spores recombinant scFvs or hybridoma technique were used. In both case surface spore antigens contained species-specific epitopes are need. Among exosporium proteins only ExsF(BxpB), ExsK and SoaA are specific to *B.cereus* group. On the surface of *B. anthracis* spores, a unique tetrasaccharide containing an novel monosaccharide – anthrose, was discovered. It was shown that anthrose can be serving as species-specific target for *B. anthracis* spores detection. We have revealed that EA1 isolated from spore of Russians strain ST1-1 contain carbohydrate which formed species-specific epitopes and determine immunogenicity of this antigen. Antibodies to this antigen specifically recognized the surface target of *B. anthracis* spores and do not reacted with others *Bacillus* spore. Based on these antibodies we developed the test-systems in different formats for rapid direct detection and identification of *B. anthracis* spores.

The results of trial these test-systems with using more than 50 different *Bacillus* strains were indicated that carbohydrate of EA1 isolated from spore is effective immunodiagnostic target for anthrax spores biodetection.

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9. AN INTEGRATED APPROACH TO RISK ASSESSMENT AND MITIGATING THE CBRN THREAT

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CBRN mass casualty events threat mitigation remains today the highest international priority. Although significant progress has been made, the national security requirements for efforts to combat Weapons of Mass Destruction and Weapons of Mass Disruption will be of the highest national priority in the near future. An integration of a number of approaches is essential in the risk assessment and mitigating the CBRN treat. Preparedness measures and procedures, engineering, science and technology, policy, medical, and emergency response are essential to reduce the threat

from the proliferation and use of weapons of mass destruction (WMD). Improved coordination between international, public and private security entities is also essential task to hopefully prevent the terrorist attacks. In this lecture, it will be presented very important scientific approach to risk assessment of potential use of nuclear, radiological, biological or chemical weapons in terrorist actions. An integrated approach for mitigating the CBRN threat, crisis management and preparedness measures for prevention and reduction of potential consequences, will be presented.

Key Words/Phrases: Mitigating the CBRN threat, Risk assessment, CBRN Mass Casualty Events

10. EXPLOSIVE DEVELOPMENTS IN BIOTECHNOLOGY AND THE ROLE OF BTWC IN STRENGTHENING A GLOBAL BIOSECURITY / BIOSAFETY

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The international community is confronted by a unique challenge in dealing with the threat posed by the potential use of biology and the life sciences in hostile purposes. As we know, the Biological Weapons Convention (BWC) entered into force thirty four years ago. It is a simple instrument, only a few pages long, but its prohibitions are clear, succinct, categorical and definitive, but it is an instrument of principle rather than procedure.

Relevant resources of biological and toxin agents, technologies and knowledge are more numerous and more widely distributed than their equivalents in other disarmament fields (chemical, radiological or nuclear). In the 1990s, negotiations were begun on a protocol to strengthen and verify the BWC, which would have added to the Convention the verification elements present in other regimes. After many years of work, this effort collapsed in disagreement and recrimination in 2001.

After the Fifth Review Conference in 2002, BWC States Parties succeeded to establish a work program for 2003 to 2005, at which they would work on several specific topics related to better implementation of the Convention. With that approach of the work, the necessary network of collaboration and coordination were developed into a flexible oversight and prevention of the biological and toxin weapons.

Experts from all around the world gathered to share experiences and ideas on how to deal with the threat posed by biological weapons. Officials from health, science and agriculture ministries made connections with their counterparts in defense, justice, foreign affairs and security agencies.

The explosive developments in biotechnology represent today serious threat and no government or international organization could hope to monitor effectively the tens of thousands of small biotechnology facilities in operation worldwide. Intelligible, this is a problem that needs a collective, multifaceted and multidimensional approach.