

PB14) Development of Analysis Systems of Biological Weapons for K-water Crisis Management System

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1. Introduction

Terrorism means an illegal act committed by a person or group with political or social purpose in a planned manner using biological or chemical agents to achieve its purpose or to obtain a symbolic effect. Biological and chemical weapons are microorganisms or toxins that are used for the purpose of disabling or killing the enemy troops. The dissemination of the biological and chemical weapons is a severe public health concern. Thus, in this study four biological weapons such as *Bacillus anthracis*, *Yersinia pestis*, *Brucella suis*, and *Francisella tularensis* were selected to establish a biological agent analysis system.

2. Materials and Methods

In this study, therefore, species-specific primers for these four bacteria were designed based on the target genes presented in the protocols from the Korea Centers for Disease Control and Prevention and specificities in each primer were verified. The design of these target primers was purposed to implement different applications, such as real-time PCR, conventional PCR, multiplex PCR, and etc., according to differences in amplicon sizes.

3. Results and Discussions

The sensitivity of detecting it was guaranteed as 0.01 ng/rxn. Gene vectors that include the amplification starters in each gene were developed to present the convenience in positive control groups and to prevent cross contaminations between experiments. It is necessary to conduct a study that improves the system of enriching water samples as a portable device and establishes a system of detecting genes at a site.

4. References

Lee, G. C., Kim, M. J., Lee, H. J., Kim, M. Y., Kim, G. W., 2017, Report of research project, KIWE-WFRC-17-05; Development of analysis system of biological and chemical weapons for the K-water crisis management system.