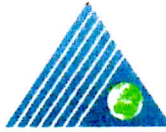


YEDİTEPE UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF GENETICS AND BIOENGINEERING

ANTIVIRAL ACTIVITY TEST REPORT

| | | |
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| REPORT RECORD NUMBER AND DATE | 80-VİR-2016-1 | 04.08.2016 |
| SAMPLE RECORD NUMBER | 2016-156 | |
| MANUFACTURER NAME AND ADRESS | Doğanay Kimya San. ve Tic. Ltd. Şti. Tuzla Org. Deri San. Böl. 15 Yol VII/2E Parsel Tuzla/İstanbul | |
| THE LICENSE OWNER COMPANY AND ADRESS | Dyna Med Sağlık Gıda Tarım Hayv. San. İç ve Dış Tic. Ltd. Şti. Nine Hatun Mah. Çiğir Dere Cad. 223/B Esenler / İstanbul | |
| TESTED PRODUCT NAME | VİRES 5 | |
| ACTIVE SUBSTANCES OF THE PRODUCT | Active Chlor 0,0160% | |
| FORM OF PRODUCT FORMULATION | Liquid | |
| SAMPLE ARRIVAL DATE | 15.07.2016 | |
| TEST PURPOSE | Viral activity determination | |
| SAMPLE SENDING INSTITUTION, DATE AND NO | İstanbul Governorate Public Health Directorate | |
| PRODUCTION AND EXPIRATION DATE OF PRODUCT | 14.07.2016 - 14.07.2018 | |
| SAMPLE CHARGE/SERIAL NO | 16002 | |
| TEST START AND END DATE | 15.07.2016 – 03.08.2016 | |
| TESTED VIRUS AND STRAIN | Poliovirus Type 1, Chat strain | |
| TESTED VIRUS AND STRAIN PROPERTIES | Reference strain of ATCC coded VR-192 | |
| TESTED DOSE | The highest non-cytotoxic concentration of the product was 0.1%, hence higher concentration than 0.1% was not tested in <i>in vitro</i> viral activity assays. | |
| CONTACT METHOD AND DURATION | Liquid mixture (inside the cell culture plates), 5 minutes and 60 minutes. | |
| TEST CONDITIONS | Clean Condition: BSA-containing medium (20 °C) Dirty Condition: BSA and sheep erythrocytes-containing medium (20 °C) | |
| TEST CELL CULTURE AND DILUTION BUFFER | HEp-2 cell culture (ATCC CCL-23) MEM, PBS, Hard water | |
| ANALYSIS METHOD | TS EN 14476 test method of Turkish Standards Institute (2014) | |

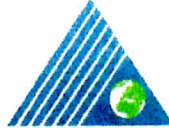


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| TEST RESULTS | | | | | | |
|---|--|-----------------|-------------------|-----------------|-----------------|-----------------|
| ACTIVITY EVALUATION METHOD | Serial dilutions of reference Poliovirus type 1, chat strain were inoculated onto HEp-2 cells and viral titer was calculated using Spearman-Karper method based on the virus dilution which exerted visible cytopathic effect under invert microscope. | | | | | |
| RESULTS | | Reference virus | Effect of Vires 5 | | | |
| | | | 5 minute | | 60 minutes | |
| | Virus titer* | 5.5 | Clean Condition | Dirty Condition | Clean Condition | Dirty Condition |
| | Virus titer with the disinfectant ** | | 1.5 | 1.5 | 1.5 | 1.5 |
| | Reduction rate in virus titer *** | | 4.0 | 4.0 | 4.0 | 4.0 |
| <p>* Logarithmic TCID50 value of virus per ml</p> <p>** Logarithmic TCID50 value of virus which was exposed to disinfectant at different contact time and conditions</p> <p>*** Logarithmic TCID50 ratio of virus titer and virus titer with the disinfectant</p> | | | | | | |
| COMMENT | <p>As tested concentration Vires 5; 10 % and 1 %, was found to exert cytotoxicity against test cell culture, the highest concentration of the disinfectant which did not display any toxicity, 0,1 % was used in the experiments. According to the calculations based on test results, 10 % concentration of Vires 5 provided at least 4 log reduction in virus titer at room temperature (20 °C) in all test conditions (see result table) for 5 and 60 minutes contact time. According to the Antimicrobial Division US EPA standards, disinfectants has to provide minimum 4 log virus titer reduction to be an acceptable virucidal agent.</p> <p>The results of the test show that Vires 5 possesses 99.99% antiviral activity against Poliovirus Type 1 at room temperature (20 °C) for 5 and 60 minutes contact time when used at 10 % concentration.</p> | | | | | |

Binnur KIRATLI
Analyst

Prof. Fikrettin SAHİN
Chair of Biocidal Laboratory



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ANTIVIRAL ACTIVITY TEST REPORT

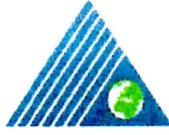
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| REPORT RECORD NUMBER AND DATE | 80-VİR-2016-2 | 04.08.2016 |
| SAMPLE RECORD NUMBER | 2016-156 | |
| MANUFACTURER NAME AND ADRESS | Doğanay Kimya San. ve Tic. Ltd. Şti. Tuzla Org. Deri San. Böl. 15 Yol VII/2E Parsel Tuzla/İstanbul | |
| THE LICENSE OWNER COMPANY AND ADRESS | Dyna Med Sağlık Gıda Tarım Hayv. San. İç ve Dış Tic. Ltd. Şti. Nine Hatun Mah. Çiğir Dere Cad. 223/B Esenler / İstanbul | |
| TESTED PRODUCT NAME | VİRES 5 | |
| ACTIVE SUBSTANCES OF THE PRODUCT | Active Chlor 0,0160% | |
| FORM OF PRODUCT FORMULATION | Liquid | |
| SAMPLE ARRIVAL DATE | 15.07.2016 | |
| TEST PURPOSE | Viral activity determination | |
| SAMPLE SENDING INSTITUTION, DATE AND NO | İstanbul Governorate Public Health Directorate | |
| PRODUCTION AND EXPIRATION DATE OF PRODUCT | 14.07.2016 - 14.07.2018 | |
| SAMPLE CHARGE/SERIAL NO | 16002 | |
| TEST START AND END DATE | 15.07.2016 – 03.08.2016 | |
| TESTED VIRUS AND STRAIN | Human adenovirus type 5, Adenoid 75 strain | |
| TESTED VIRUS AND STRAIN PROPERTIES | Reference strain of ATCC coded VR-5 | |
| TESTED DOSE | The highest non-cytotoxic concentration of the product was 0.1%, hence higher concentration than 0.1% was not tested in <i>in vitro</i> viral activity assays. | |
| CONTACT METHOD AND DURATION | Liquid mixture (inside the cell culture plates), 5 minutes and 60 minutes. | |
| TEST CONDITIONS | Clean Condition: BSA-containing medium (20 °C) Dirty Condition: BSA and sheep erythrocytes-containing medium (20 °C) | |
| TEST CELL CULTURE AND DILUTION BUFFER | HEp-2 cell culture (ATCC CCL-23) MEM, PBS, Hard water | |
| ANALYSIS METHOD | TS EN 14476 test method of Turkish Standards Institute (2014) | |

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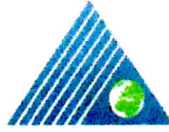
| TEST RESULTS | | | | | | |
|----------------------------|--|-----------------|-------------------|-----------------|-----------------|-----------------|
| ACTIVITY EVALUATION METHOD | Serial dilutions of reference Human adenovirus type 5, Adenoid 75 strain were inoculated onto HEp-2 cells and viral titer was calculated using Spearman-Karper method based on the virus dilution which exerted visible cytopathic effect under invert microscope. | | | | | |
| RESULTS | | Reference virus | Effect of Vires 5 | | | |
| | | | 5 minute | | 60 minutes | |
| | Virus titer* | 5.0 | Clean Condition | Dirty Condition | Clean Condition | Dirty Condition |
| | Virus titer with the disinfectant ** | | 1.5 | 1.5 | 1.5 | 1.5 |
| | Reduction rate in virus titer *** | | 4.0 | 4.0 | 4.0 | 4.0 |
| | <p>* Logarithmic TCID50 value of virus per ml</p> <p>** Logarithmic TCID50 value of virus which was exposed to disinfectant at different contact time and conditions</p> <p>*** Logarithmic TCID50 ratio of virus titer and virus titer with the disinfectant</p> | | | | | |
| COMMENT | <p>As tested concentration Vires 5; 10 % and 1 %, was found to exert cytotoxicity against test cell culture, the highest concentration of the disinfectant which did not display any toxicity, 0,1 % was used in the experiments. According to the calculations based on test results, 10 % concentration of Vires 5 provided at least 4 log reduction in virus titer at room temperature (20 °C) in all test conditions (see result table) for 5 and 60 minutes contact time. According to the Antimicrobial Division US EPA standards, disinfectants has to provide minimum 4 log virus titer reduction to be an acceptable virucidal agent.</p> <p>The results of the test show that Vires 5 possesses 99.99% antiviral activity against Human adenovirus type 5 at room temperature (20 °C) for 5 and 60 minutes contact time when used at 10 % concentration.</p> | | | | | |

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Analyst

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ANTIVIRAL ACTIVITY TEST REPORT

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| REPORT RECORD NUMBER AND DATE | 80-VİR-2016-3 | 04.08.2016 |
| SAMPLE RECORD NUMBER | 2016-156 | |
| MANUFACTURER NAME AND ADRESS | Doğanay Kimya San. ve Tic. Ltd. Şti. Tuzla Org. Deri San. Böl. 15 Yol VII/2E Parsel Tuzla/İstanbul | |
| THE LICENSE OWNER COMPANY AND ADRESS | Dyna Med Sağlık Gıda Tarım Hayv. San. İç ve Dış Tic. Ltd. Şti. Nine Hatun Mah. Çiçin Dere Cad. 223/B Esenler / İstanbul | |
| TESTED PRODUCT NAME | VİRES 5 | |
| ACTIVE SUBSTANCES OF THE PRODUCT | Active Chlor 0,0160% | |
| FORM OF PRODUCT FORMULATION | Liquid | |
| SAMPLE ARRIVAL DATE | 15.07.2016 | |
| TEST PURPOSE | Viral activity determination | |
| SAMPLE SENDING INSTITUTION, DATE AND NO | İstanbul Governorate Public Health Directorate | |
| PRODUCTION AND EXPIRATION DATE OF PRODUCT | 14.07.2016 - 14.07.2018 | |
| SAMPLE CHARGE/SERIAL NO | 16002 | |
| TEST START AND END DATE | 15.07.2016 – 03.08.2016 | |
| TESTED VIRUS AND STRAIN | Murine Norovirus | |
| TESTED VIRUS AND STRAIN PROPERTIES | Reference strain of ATCC coded PTA-5935 | |
| TESTED DOSE | The highest non-cytotoxic concentration of the product was 0.1%, hence higher concentration than 0.1% was not tested in <i>in vitro</i> viral activity assays. | |
| CONTACT METHOD AND DURATION | Liquid mixture (inside the cell culture plates), 5 minutes and 60 minutes. | |
| TEST CONDITIONS | Clean Condition: BSA-containing medium (20 °C) Dirty Condition: BSA and sheep erythrocytes-containing medium (20 °C) | |
| TEST CELL CULTURE AND DILUTION BUFFER | RAW cell culture (ATCC TIB-71) MEM, PBS, Hard water | |
| ANALYSIS METHOD | TS EN 14476 test method of Turkish Standards Institute (2014) | |



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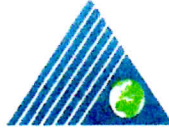
| TEST RESULTS | | | | | | |
|---|---|-----------------|-------------------|-----------------|-----------------|-----------------|
| ACTIVITY EVALUATION METHOD | Serial dilutions of reference Murine Norovirus PTA-5935 strain were inoculated onto RAW cells and viral titer was calculated using Spearman-Kärper method based on the virus dilution which exerted visible cytopathic effect under invert microscope. | | | | | |
| RESULTS | | Reference virus | Effect of Vires 5 | | | |
| | | | 5 minute | | 60 minutes | |
| | Virus titer* | 5.5 | Clean Condition | Dirty Condition | Clean Condition | Dirty Condition |
| | Virus titer with the disinfectant ** | | 1.5 | 1.5 | 1.5 | 1.5 |
| | Reduction rate in virus titer *** | | 4.0 | 4.0 | 4.0 | 4.0 |
| <p>* Logarithmic TCID50 value of virus per ml</p> <p>** Logarithmic TCID50 value of virus which was exposed to disinfectant at different contact time and conditions</p> <p>*** Logarithmic TCID50 ratio of virus titer and virus titer with the disinfectant</p> | | | | | | |
| COMMENT | <p>As tested concentration Vires 5; 10 % and 1 %, was found to exert cytotoxicity against test cell culture, the highest concentration of the disinfectant which did not display any toxicity, 0,1 % was used in the experiments. According to the calculations based on test results, 10 % concentration of Vires 5 provided at least 4 log reduction in virus titer at room temperature (20 °C) in all test conditions (see result table) for 5 and 60 minutes contact time. According to the Antimicrobial Division US EPA standards, disinfectants has to provide minimum 4 log virus titer reduction to be an acceptable virucidal agent.</p> <p>The results of the test show that Vires 5 possesses 99.99% antiviral activity against Murine Norovirüs at room temperature (20 °C) for 5 and 60 minutes contact time when used at 10 % concentration.</p> | | | | | |

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ANTIVIRAL ACTIVITY TEST REPORT

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| REPORT RECORD NUMBER AND DATE | 80-VİR-2016-4 | 04.08.2016 |
| SAMPLE RECORD NUMBER | 2016-156 | |
| MANUFACTURER NAME AND ADRESS | Doğanay Kimya San. ve Tic. Ltd. Şti. Tuzla Org. Deri San. Böl. 15 Yol VII/2E Parsel Tuzla/İstanbul | |
| THE LICENSE OWNER COMPANY AND ADRESS | Dyna Med Sağlık Gıda Tarım Hayv. San. İç ve Dış Tic. Ltd. Şti. Nine Hatun Mah. Çiğir Dere Cad. 223/B Esenler / İstanbul | |
| TESTED PRODUCT NAME | VİRES 5 | |
| ACTIVE SUBSTANCES OF THE PRODUCT | Active Chlor 0,0160% | |
| FORM OF PRODUCT FORMULATION | Liquid | |
| SAMPLE ARRIVAL DATE | 15.07.2016 | |
| TEST PURPOSE | Viral activity determination | |
| SAMPLE SENDING INSTITUTION, DATE AND NO | İstanbul Governorate Public Health Directorate | |
| PRODUCTION AND EXPIRATION DATE OF PRODUCT | 14.07.2016 - 14.07.2018 | |
| SAMPLE CHARGE/SERIAL NO | 16002 | |
| TEST START AND END DATE | 15.07.2016 – 03.08.2016 | |
| TESTED VIRUS AND STRAIN | Bovine Enterovirus Type 1, LCR 4 strain | |
| TESTED VIRUS AND STRAIN PROPERTIES | Reference strain of ATCC coded VR-248 | |
| TESTED DOSE | The highest non-cytotoxic concentration of the product was 0.1%, hence higher concentration than 0.1% was not tested in <i>in vitro</i> viral activity assays. | |
| CONTACT METHOD AND DURATION | Liquid mixture (inside the cell culture plates), 30 minutes and 60 minutes. | |
| TEST CONDITIONS | Clean Condition: BSA-containing medium (10 °C) Dirty Condition: BSA and sheep erythrocytes-containing medium (10 °C) | |
| TEST CELL CULTURE AND DILUTION BUFFER | MDBK cell culture (ATCC CCL-22) MEM, PBS, Hard water | |
| ANALYSIS METHOD | TS EN 14675 test method of Turkish Standards Institute (2006) | |



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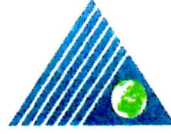
| TEST RESULTS | | | | | | |
|---|--|-----------------|-------------------|-----------------|-----------------|-----------------|
| ACTIVITY EVALUATION METHOD | Serial dilutions of reference Bovine enterovirus Type 1 strain were inoculated onto MDBK cell culture and viral titer was calculated using Spearman-Karper method based on the virus dilution which exerted visible cytopathic effect under invert microscope. | | | | | |
| RESULTS | | Reference virus | Effect of Vires 5 | | | |
| | | | 30 minute | | 60 minutes | |
| | Virus titer* | 6.0 | Clean Condition | Dirty Condition | Clean Condition | Dirty Condition |
| | Virus titer with the disinfectant ** | | 1.5 | 1.5 | 1.5 | 1.5 |
| | Reduction rate in virus titer *** | | 4.5 | 4.5 | 4.5 | 4.5 |
| <p>* Logarithmic TCID50 value of virus per ml</p> <p>** Logarithmic TCID50 value of virus which was exposed to disinfectant at different contact time and conditions</p> <p>*** Logarithmic TCID50 ratio of virus titer and virus titer with the disinfectant</p> | | | | | | |
| COMMENT | <p>As tested concentration Vires 5; 10 % and 1 %, was found to exert cytotoxicity against test cell culture, the highest concentration of the disinfectant which did not display any toxicity, 0,1 % was used in the experiments. According to the calculations based on test results, 10 % concentration of Vires 5 provided at least 4 log reduction in virus titer at room temperature (10 °C) in all test conditions (see result table) for 30 and 60 minutes contact time. According to the Antimicrobial Division US EPA standards, disinfectants has to provide minimum 4 log virus titer reduction to be an acceptable virucidal agent.</p> <p>The results of the test show that Vires 5 possesses 99.99% antiviral activity against Bovine Enterovirus Type 1 at room temperature (10 °C) for 30 and 60 minutes contact time when used at 10 % concentration.</p> | | | | | |

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ANTIVIRAL ACTIVITY TEST REPORT

| | | |
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| REPORT RECORD NUMBER AND DATE | 80-VİR-2016-5 | 04.08.2016 |
| SAMPLE RECORD NUMBER | 2016-156 | |
| MANUFACTURER NAME AND ADRESS | Doğanay Kimya San. ve Tic. Ltd. Şti. Tuzla Org. Deri San. Böl. 15 Yol VII/2E Parsel Tuzla/İstanbul | |
| THE LICENSE OWNER COMPANY AND ADRESS | Dyna Med Sağlık Gıda Tarım Hayv. San. İç ve Dış Tic. Ltd. Şti. Nine Hatun Mah. Çiçin Dere Cad. 223/B Esenler / İstanbul | |
| TESTED PRODUCT NAME | VİRES 5 | |
| ACTIVE SUBSTANCES OF THE PRODUCT | Active Chlor 0,0160% | |
| FORM OF PRODUCT FORMULATION | Liquid | |
| SAMPLE ARRIVAL DATE | 15.07.2016 | |
| TEST PURPOSE | Viral activity determination | |
| SAMPLE SENDING INSTITUTION, DATE AND NO | İstanbul Governorate Public Health Directorate | |
| PRODUCTION AND EXPIRATION DATE OF PRODUCT | 14.07.2016 - 14.07.2018 | |
| SAMPLE CHARGE/SERIAL NO | 16002 | |
| TEST START AND END DATE | 15.07.2016 – 03.08.2016 | |
| TESTED VIRUS AND STRAIN | Human Rotavirüs Wa strain | |
| TESTED VIRUS AND STRAIN PROPERTIES | Reference strain of ATCC coded VR-2018 | |
| TESTED DOSE | The highest non-cytotoxic concentration of the product was 0.1%, hence higher concentration than 0.1% was not tested in <i>in vitro</i> viral activity assays. | |
| CONTACT METHOD AND DURATION | Liquid mixture (inside the cell culture plates), 2 minutes and 60 minutes. | |
| TEST CONDITIONS | Clean Condition: BSA-containing medium (20 °C) Dirty Condition: BSA and sheep erythrocytes-containing medium (20 °C) | |
| TEST CELL CULTURE AND DILUTION BUFFER | MA104 cell culture (ATCC CCL-23) MEM, PBS, Hard water | |
| ANALYSIS METHOD | TS EN 14476 test method of Turkish Standards Institute (2014) And OECD ENV/JM/MONO/2012 (15) | |



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| TEST RESULTS | | | | | | |
|----------------------------|--|-----------------|-------------------|-----------------|-----------------|-----------------|
| ACTIVITY EVALUATION METHOD | Serial dilutions of reference Human Rotavirüs, Wa strain were inoculated onto MA104 cells and viral titer was calculated using Spearman-Karper method based on the virus dilution which exerted visible cytopathic effect under invert microscope. | | | | | |
| RESULTS | | Reference virus | Effect of Vires 5 | | | |
| | | | 2 minute | | 60 minutes | |
| | Virus titer* | 5.0 | Clean Condition | Dirty Condition | Clean Condition | Dirty Condition |
| | Virus titer with the disinfectant ** | | 1.5 | 1.5 | 1.5 | 1.5 |
| | Reduction rate in virus titer *** | | 3.0 | 3.0 | 4.0 | 4.0 |
| | * Logarithmic TCID50 value of virus per ml | | | | | |
| | ** Logarithmic TCID50 value of virus which was exposed to disinfectant at different contact time and conditions | | | | | |
| | *** Logarithmic TCID50 ratio of virus titer and virus titer with the disinfectant | | | | | |
| COMMENT | <p>As tested concentration Vires 5; 10 % and 1 %, was found to exert cytotoxicity against test cell culture, the highest concentration of the disinfectant which did not display any toxicity, 0,1 % was used in the experiments. According to the calculations based on test results, 10 % concentration of Vires 5 provided at least 4 log reduction in virus titer at room temperature (20 °C) in all test conditions (see result table) for 2 and 60 minutes contact time. According to the Antimicrobial Division US EPA standards, disinfectants has to provide minimum 4 log virus titer reduction to be an acceptable virucidal agent.(According to OECD ENV/JM/MONO/2012 minimum 3 log)</p> <p>The results of the test show that Vires 5 possesses 99.9% antiviral activity against Human Rotavirüs, Wa strain at room temperature (20 °C) for 2 and 60 minutes contact time when used at 1 ppm/Liter concentration.</p> | | | | | |

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