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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

SN/T 5227.2-2019

**Rapid detection of pig-derived components in exported foods
Recombinase-mediated strand replacement nucleic acid
amplification method (RAA method)
(English Translation)**

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Foreword

SN/T 5227-2019 "Rapid Detection of Animal-derived Components in Exported Foods Recombinase Mediated Strand Replacement Nucleic Acid Amplification Method (RAA Law)" is divided into 11 parts.

Part 1: Rapid detection of chicken-derived components in exported foods, recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 2: Rapid detection of pig-derived components in export foods, recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 3: Rapid detection of sheep-derived components in export foods, recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 4: Rapid detection of duck-derived components in export foods recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 5: Rapid detection of bovine-derived components in exported foods, recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 6: Rapid detection of buffalo-derived components in export foods recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 7: Rapid detection of horse-derived components in export foods, recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 8: Rapid detection of donkey-derived components in export foods recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 9: Rapid detection of fox-derived components in export foods recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 10: Rapid detection of mink-derived components in exported foods, recombinase-mediated strand replacement nucleic acid amplification method (RAA method);

Part 11: Rapid detection of rat-derived components in export foods Recombinase-mediated amplification strand replacement nucleic acid method (RAA method).

This part is part 2 of SN/T 5227-2019.

This standard is compiled in accordance with the rules of GB/T 1.1-2009.

This standard was proposed and managed by the General Administration of Customs of the People's Republic of China.

Drafting organizations of this standard. Zhengzhou Customs of the People's Republic of China, Shijiazhuang Customs of the People's Republic of China, China Inspection and Quarantine Science Research Institute, Zhejiang Institute of Food and Drug Inspection, Xiamen Customs of the People's Republic of China, Dalian Customs of the People's Republic of China, Chinese Beijing Customs of the People's Republic of China, Gongbei Customs of the People's Republic of China, Hangzhou Customs of the People's Republic of China, and Chengdu Customs of the People's Republic of China.

1 Scope

This section specifies the RAA detection method for pig-derived ingredients in exported food.

This section applies to the qualitative detection of pig-derived ingredients in exported food. The minimum detection limit (LOD) of the method specified in this standard is 0.01% (W/W).

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version is applicable to this file. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 6682 Analytical laboratory water specifications and test methods GB/T 27403-2008 Laboratory Quality Control Specification Food Molecular Biology Testing

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1 Pig Sus

Artiodactyla, Suigoides, Suidae, Suidae are divided into domestic pigs and wild boars. The subspecies include. Central European wild boar, Southeast Asian wild boar and Indian wild boar, it is generally believed that these three subspecies constitute the breeding of domestic pigs.

3.1.2 Real-time RAA real-time RAA

A constant-temperature nucleic acid rapid amplification technology (referred to as RAA technology) that recombinase-mediated strand replacement. Utilize what is obtained from bacteria or fungi Recombinant enzyme, at a constant temperature (usually 37 °C ~ 42 °C), the recombinase can be tightly combined with the primer to form a polymer of the enzyme and the primer.

With the help of the single-stranded DNA binding protein, the double-stranded structure of the template DNA is opened. When the primer is searched on the template DNA, it is completely matched with it.

When matching complementary sequences, under the action of DNA polymerase, new complementary DNA strands are formed, and the amplified products grow exponentially. Use fluorescent with the labeling of the optical probe, as the RAA reaction proceeds, the RAA product and the increase in the fluorescence signal show a corresponding

relationship.

3.1.3 Ct value cycle threshold

The number of cycles experienced when the fluorescence signal in each reaction tube reaches the set threshold.

3.1.4 T value Time threshold

The time required for the fluorescence signal in each reaction tube to reach the set threshold.

3.2 Abbreviations

The following abbreviations apply to this document.

3.2.1

RAA. recombinase-aid amplification, recombinase-mediated amplification.

3.2.2

DNA. deoxyribonucleic acid, deoxyribonucleic acid.

3.2.3

CTAB. cetyltrimethylammonium bromide, cetyltrimethylammonium bromide.

3.2.4

Tris. tris (Hydroxymethyl) aminomethane.

3.2.5

EDTA. ethylene diaminetetraacetic acid.

3.2.6

dNTPs. deoxyribonucleoside triphosphate, deoxyribonucleoside triphosphate.

3.2.7

SSB. single stranded DNA binding protein, single stranded DNA binding protein.

3.2.8

SC-recA. *Streptomyces coelicolor* recombinase, *Streptomyces coelicolor* recombinase.

3.2.9

BS-recA. *Bacillus subtilis* recombinase, *Bacillus subtilis* recombinase.

3.2.10

Bsu. *Bacillus subtilis*, *Bacillus subtilis*.