ICS 65.020.01
CCS B 60

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 43650-2024

Technical procedures for DNA species identification of wild animals and their products

野生动物及其制品DNA物种鉴定技术规程

Issued on: March 15, 2024 **Implemented on: July 1, 2024**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Preface III
1 Scope 1
2 Normative references 1
3 Terms, definitions and abbreviations 1
3.1 Terms and Definitions 1
3.2 Abbreviations 2
4 Sample collection and storage 2
4.1 Sample Collection 2
4.2 Sampling 2
4.3 Sampling and storage 2
4.4 Transportation 3
5 Structure of DNA Identification Procedure 4
6 DNA Identification Procedure 4
6.1 Sample preparation 4
6.2 DNA extraction 5
6.3 DNA purification 5
6.4 DNA quality assessment 5
6.5 Detection methods 6
7 Results presentation 10
8 Tracing Methods10 10
9 Pollution Prevention and Treatment10 10
10 Laboratory Area Setup 10
11 Instrument and reagent requirements 10
12 Laboratory Cleaning10 11
13 Safety protection10 11
14 Waste Disposal10 11
Appendix A (Informative) Electrophoresis Detection Procedure 11
A.1 Conventional electrophoresis detection method11 A.2 Chip electrophoresis detection method12 A.3 Other electrophoresis detection methods12 13
Appendix B (Informative) Universal Primer Sequence Information 13
B.1 Universal primers for Cytb gene 13
B.2 COI gene universal primer 13

B.3 12SrRNA gene universal primer 13
B.4 16SrRNA gene universal primer 13
Appendix C (Informative) Universal Primer PCR Reaction System and Reaction Procedure 15
C.1 Reaction system 15
C.2 Reaction Procedure 15
Appendix D (Informative) Primers, reaction procedures and reaction systems for specific PCR 16
C.1 Primer specific to Saigatatarica 16
C.2 Snow leopard (Pantherauncia) specific primer 16
C.3 Pantherapardus specific primer 17
C.4 Tiger (Pantheratigris) specific primer 17
C.5 Black bear (Ursusthibetanus) specific primer 17
Appendix E (Informative) qPCR Reaction System and Reaction Procedure 18
E.1 Reaction system 18
E.2 Reaction Procedure 18
Appendix F (Informative) dPCR Reaction System and Reaction Procedure 19
F.1 Reaction system 19
F.2 Reaction Procedure 19
References 20

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the State Forestry and Grassland Administration.

This document is under the jurisdiction of the National Technical Committee for Standardization of Wildlife Conservation, Management and Commercial Utilization (SAC/TC369).

This document was drafted by: Northeast Forestry University, Northeast Forestry University Judicial Appraisal Institute, Shenzhen BGI Life Sciences Institute, China Customs Science and Technology Bureau Scientific and Technical Research Center, Heilongjiang Provincial Public Security Department, Harbin Inspection and Certification Group Co., Ltd., Shenzhen

Huada Forensic Technology Co., Ltd., Guangdong Donghua University Forensic Evidence Judicial Appraisal Institute, Heilongjiang Wildlife Research Institute, South China Animal Species Environmental Damage Judicial Appraisal Center, Nanning Hai Customs Technology Center, Nanjing Police College, Hefei Customs Technology Center, Guangxi Zhuang Autonomous Region Public Security Department, and Dongying City Public Security Bureau.

The main drafters of this document are: Bai Suying, Ma Yue, Wang Zhen, Li Bo, Zhang Wei, Sun Lei, Xu Yanchun, Zhang Lifeng, Wang Jian, Liu Wei, Yang Tiantian, Lan Tianming, Li Xiaoping, Wei Jinpu, Guo Xiaosen, Li Ning, Jin Yu, Zhang Yu, Sun Hongyu, Ma Yunlong, Jin Xiangxiang, Liu Chuang, Liu Changjing, Hu Shijia, Li Yunfei, Zhang Xincheng, Tang Hongkai.

DNA species identification of wild animals and their products Technical regulations

1 Scope

This document specifies the sample collection and storage, DNA identification procedures for DNA species identification of wild animals and their products.

The main technical requirements include composition, DNA identification procedures, result presentation, traceability methods, pollution prevention and treatment, laboratory area settings, etc.

This document applies to DNA testing and identification of species from which wild animals and their products are derived.

2 Normative references

GB 19489

GB/T 19495.2

GB/T 34796

NY/T 541-2016

3.1 Terms and Definitions

The following terms and definitions apply to this document.

3.1.1 DNA barcode

A relatively short conserved DNA fragment of a selected standard region used for species identification.

3.1.2

Use DNA testing technology to determine the taxonomic status (family, genus, species) of wild animals and their products.

3.1.3 Sequence alignment

Using computer algorithms and programs, determine the similarity and even homology of two or more nucleotide sequences.

3.1.4 Primers

Two synthetic complementary oligonucleotide fragments, one is complementary to the DNA template strand at the 5' end of the target region; the other is complementary to the DNA template strand at the 3' end of the target region.

The DNA template strand is complementary.