



中国科学院成都生物研究所

CHENGDU INSTITUTE OF BIOLOGY, CHINESE ACADEMY OF SCIENCES



**Chengdu Institute of Biology
Chinese Academy of Sciences**

ZHAO Xinquan, Director General

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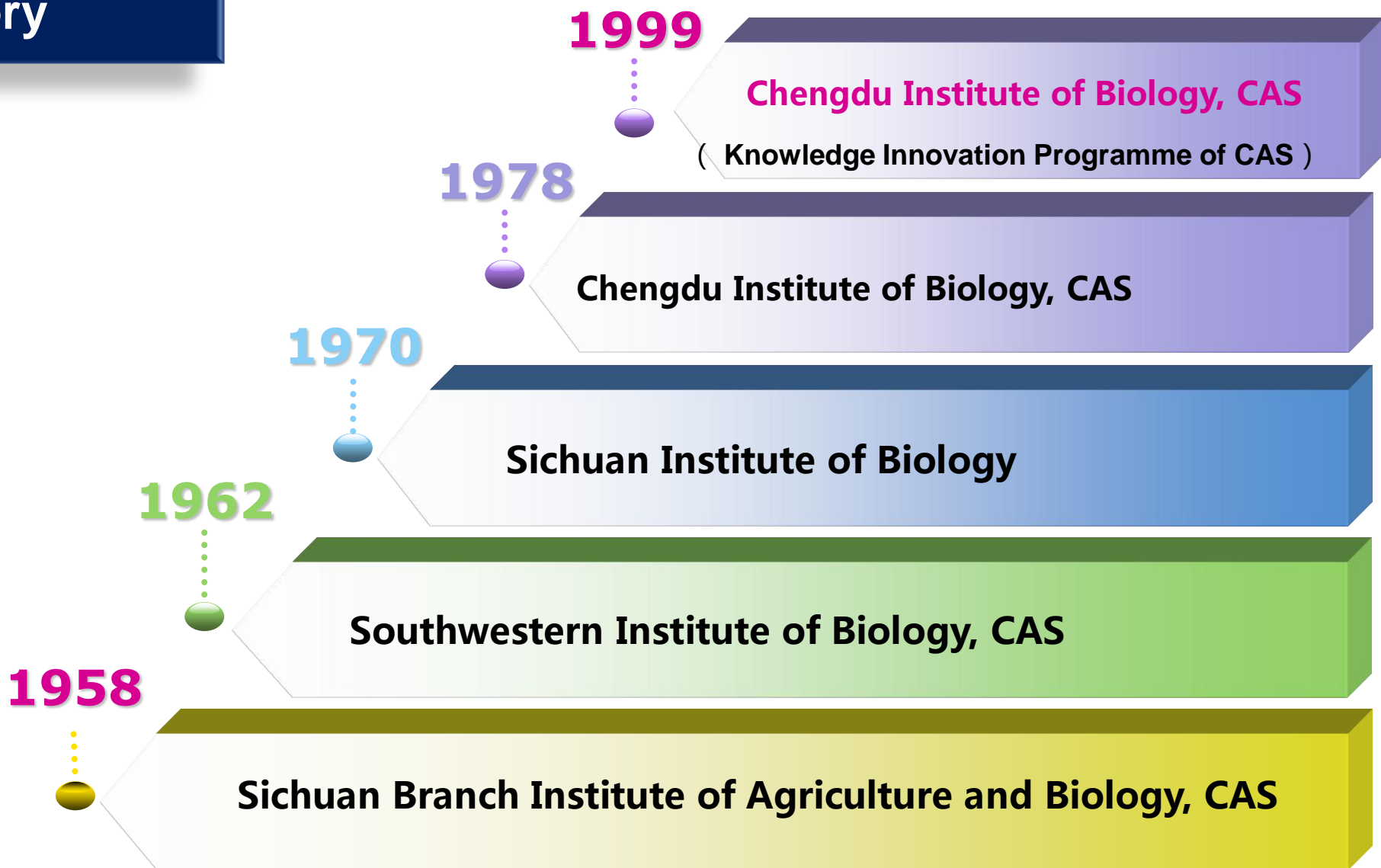
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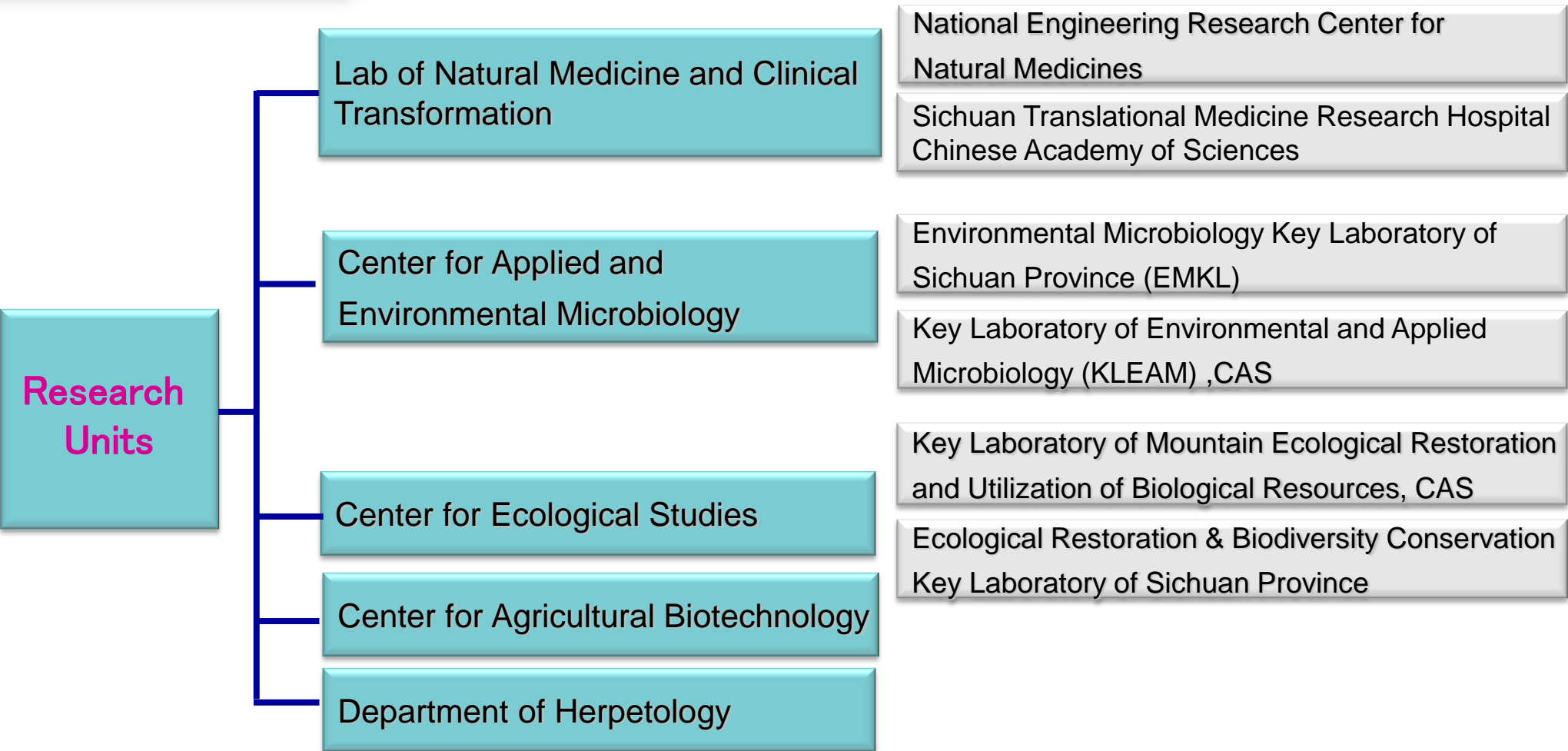
[I]

General Profile

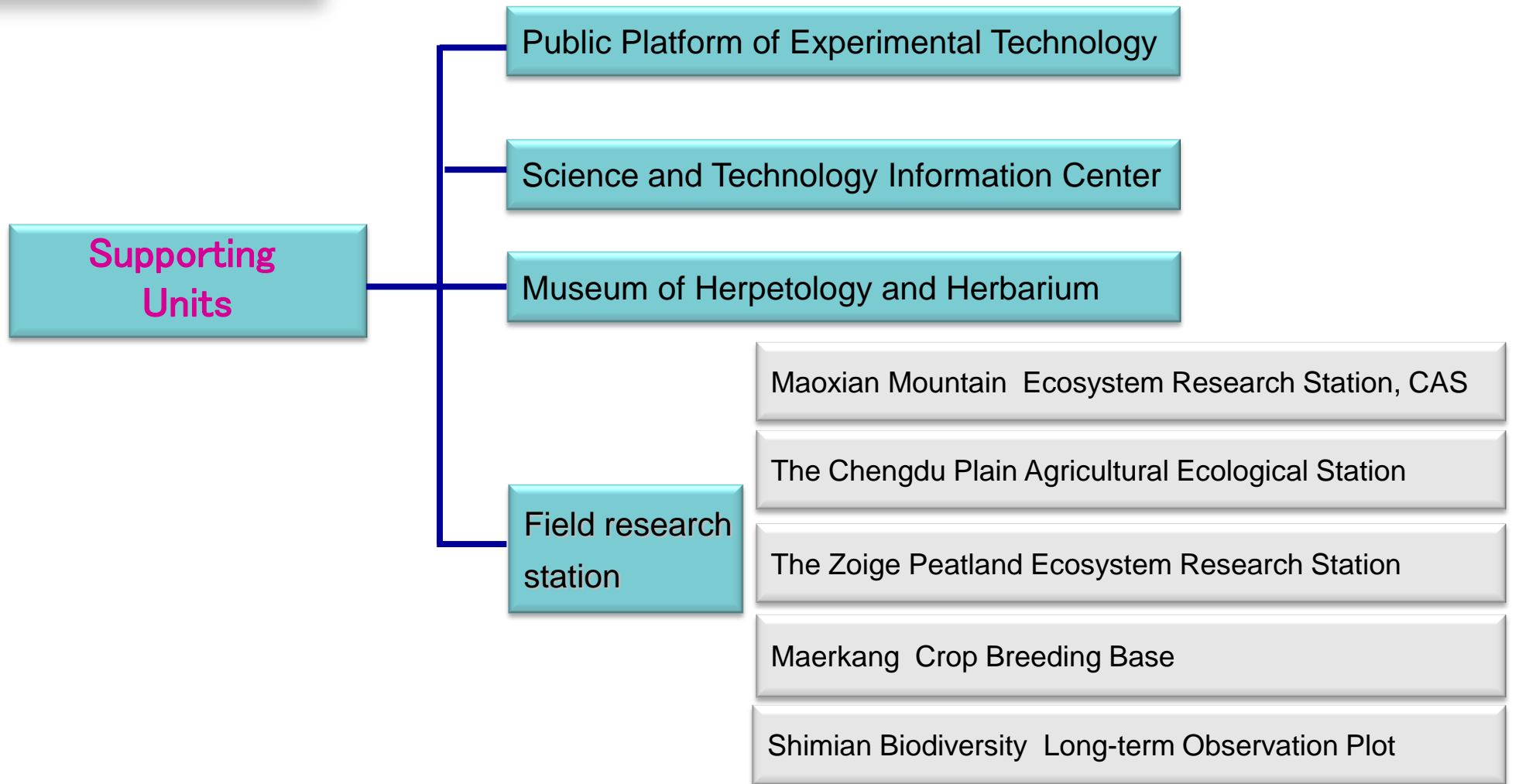
History



Organization



Organization



Staff

- Staff: 300+
- Graduate students: 300+

Academician	1
National Ten Thousand Talents Program	1
Innovative Talents Promotion Project, MOST	1
Hundred Talent Program, CAS	14
Thousand Talent, Sichuan	2
Hundred Talent, Sichuan	6
Professor	54
Associate Professor	110

[II]

Strategic Orientations

Strategic Orientations

Demand Orientation

Whole Chain Design

Systematic Solution

Eco-environment protection and sustainable uses of Biological resources , bio-industry development of the upper and middle reaches of the Yangtze River

Mission

Knowledge inventing

Products and model development

Technological innovation

Efficient, safe and sustainable production of regional agriculture

[III]

Discipline Advantages and Priorities

Discipline Advantages

- **Zootaxy (Amphibians and Reptiles)**
- **Plant taxonomy**
- **Phytochemistry**
- **Ecosystem ecology**
- **Crop breeding**
- **Biopesticide studies**
- **Applied and environmental microbiology**

Discipline Priorities

Eco-environment protection

Research on microbial catalytic processes & mechanisms for microbial conversion of agricultural waste

Protection of typical ecosystems and ecological processes, biodiversity conservation in the middle and upper reaches of the Yangtze River

Molecular mechanism of adaptation and evolution of amphibians and reptiles

Sustainable utilization of biological resources

Research, development and industrialization of biological pesticide from microbial sources

Research on germplasm innovation and genetic improvement for major crops

Development of rapid detection technology and diagnostic kit for agricultural hazards and crop pathogens

Exploitation and efficient utilization of significant biological resources, and development of new biological products

[IV]

Major Achievements

2011–2016

Awards: 27

- National: 2; National Natural Science Awards (ranked 1st)
National S&T Progress Award (ranked 3rd)
Provincial and Ministerial: 15
Municipal/Society/Association: 9
- International awards: 1

Patents: 215 applied

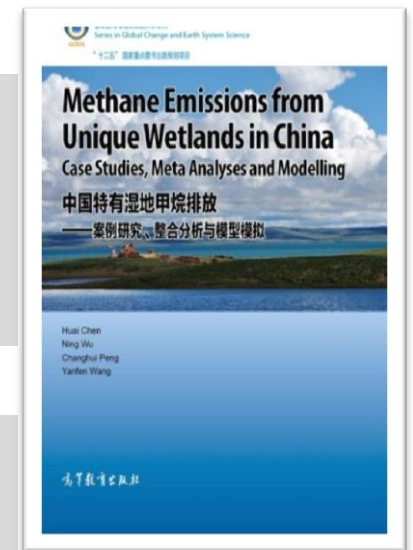
201 Invention patents + 14 New practical patents

183 authorized

167 Invention (PCT 1) + 16 New practical patents

Publications: 1659 papers

1151 SCI articles + 10 monographs



Biological Pesticides

New biological pesticides
developed, transferred and commercialized

Research of natural abscisic acid
International leading position



Molecular design breeding of important crops

World's first genome draft of highland barley

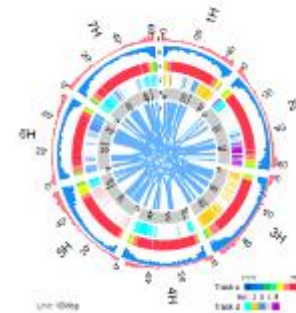
6 wheat varieties provincially approved in five years

5-year total area of new wheat varieties popularization and application >2.4 mil. ha

Awards:

Second prize - *National S&T Progress Award*

First prize - *Chinese Agricultural S&T Award*



Resource utilization technology of waste

Second prize – National S&T Progress Award

Comprehensive Technology and Application of Organic Solid Waste

Demonstration projects

*of solid waste utilization set up
home and abroad*



Biological fuel

First prize – S&T Promotion and Development Award, CAS, 2015

High Efficient Technologies for Ethanol Production from Tuber Crops

International advanced progress in Ethanol Production from Tubers:

- *High efficiency viscosity reduction*
- *High-concentration fermentation*
- *Rapid fermentation*



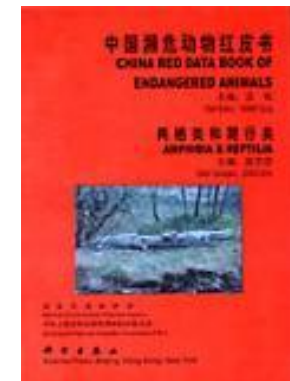
Herpetological studies

Second Prize – National Natural Science Award

Phylogenetic Studies for amphibians in China

An amphibian monitoring network established

“Chinese Vertebrate Red List – amphibians and reptiles” assessed



Ecosystem structures and functions

New theories

Relationship between ecosystem structure and function

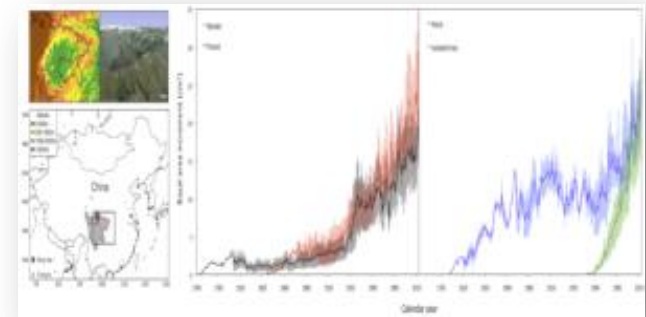
New mechanisms

N₂O and NO production

Forest carbon sink accounting

Highly evaluated by the UN Secretary General

Ecosystem conservation research of Mt. Kailash Landscape



Nucleic acid colorimetric detection

Non-fluorescent labeled probes of nucleic acid colorimetric detection

Fast, efficient and low cost, breaking the international monopoly. A company set up to commercialize the technologies

Multiple application

- *In vitro diagnosis of human disease*
- *Pathogen detection,*
- *Quality detection for traditional Chinese medicine*
- *Identification of genetically modified crops*
- ...

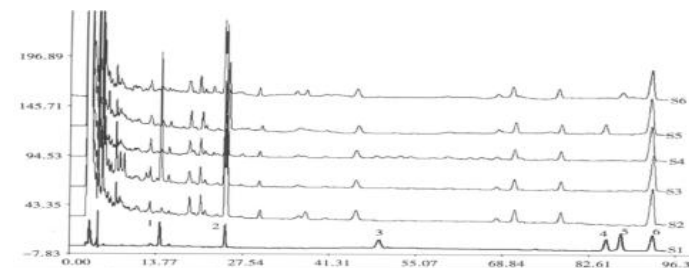
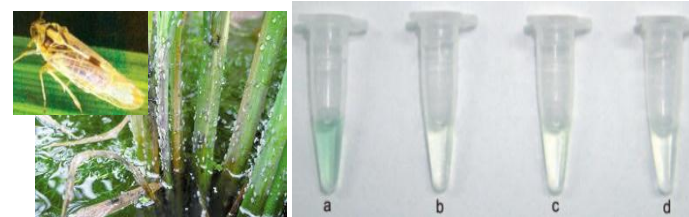


图2 人参及部分伪品掺入后的 HPLC 色谱图(203nm)
注: S1: 混合对照品, S2: 人参, S3: 5% 华山参掺入, S4: 10% 桔梗掺入, S5: 10% 商陆掺入, S6: 10% 羊乳掺入; 1: 齐莴笋内酯, 2: 人参皂苷 Rg, 3: 桔梗皂苷 D, 4: 商陆皂苷甲, 5: Codonopside, 6: 人参皂苷 Rh₂



Active natural products

Diaoxinxuekang Capsule

Developed for treatment of cardiovascular diseases

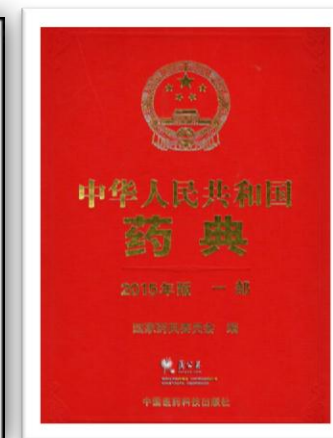
Transformation of active compounds

New efficient transformation methods developed and optimized

New natural compounds found

>200 kinds

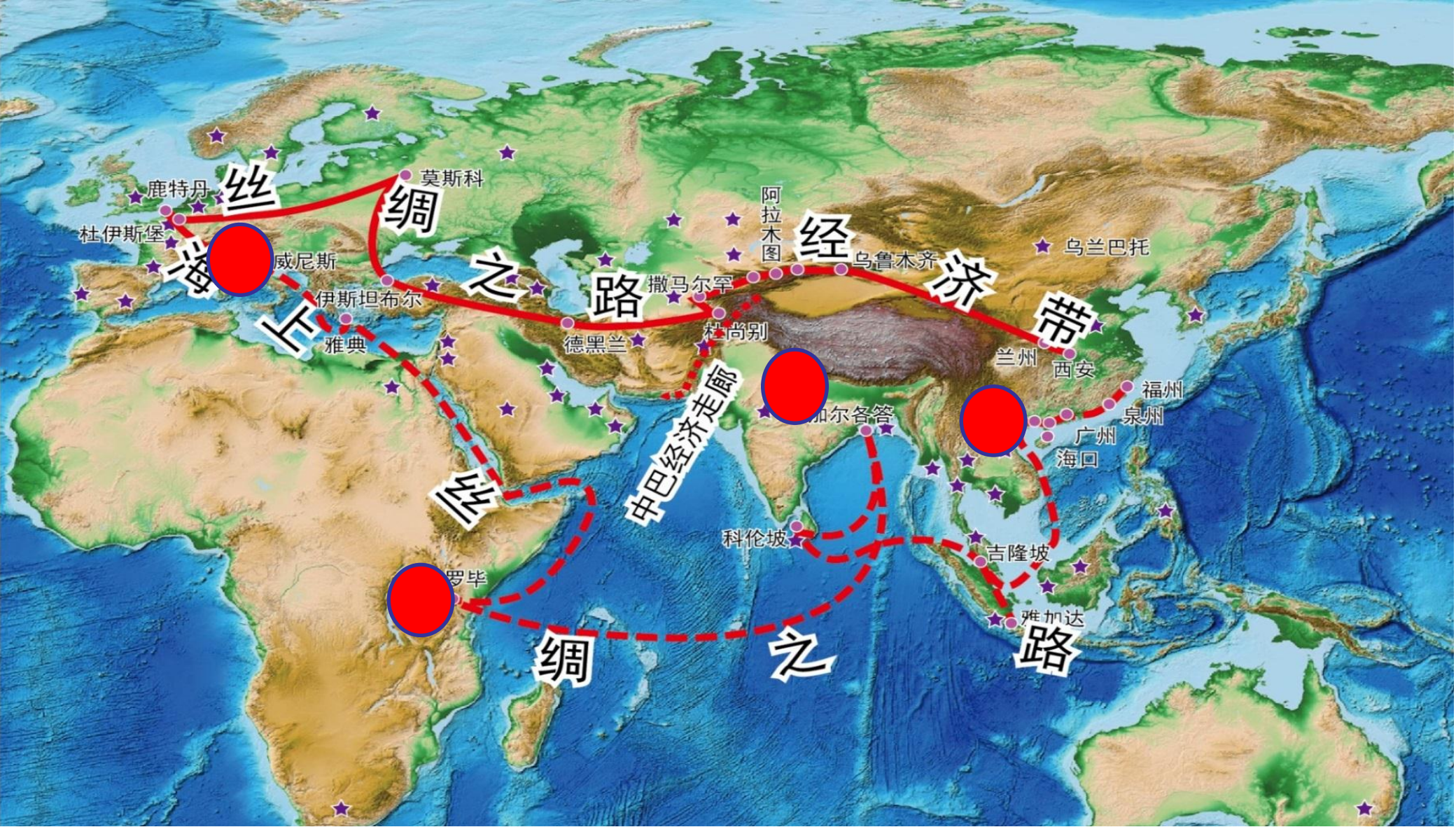
2 national pharmacopoeia standards formulated



[VI]

International Cooperation

Build Greening "One Belt and One Road" Balkan/Africa/Southeast Asia

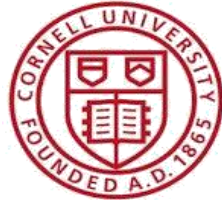


Global network/connections

Academies & Research Institutions



Universities



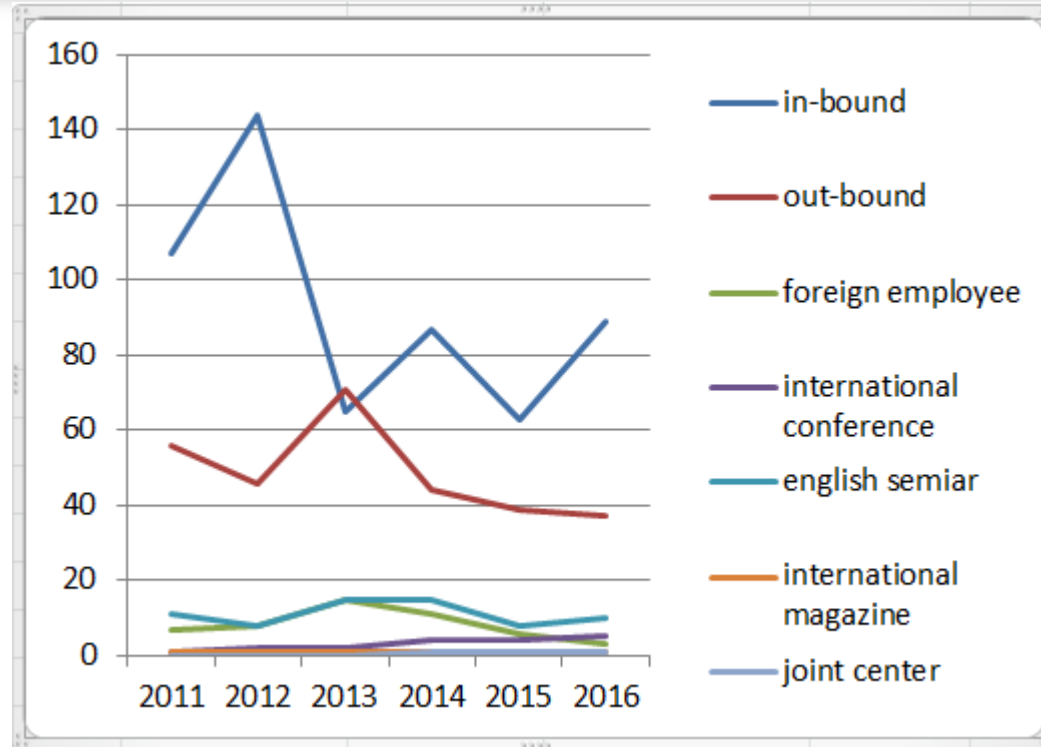
International Organizations



MNCs



Continuous exchange and communication



《Asian Herpetological Research》 , IF 0.681

China-Croatia Joint Research Centre for Ecological Environment Protection

The Sino-UK Joint Centre for Natural Compound Research & Development (SUNR&D)

Solid foundation for Cooperation

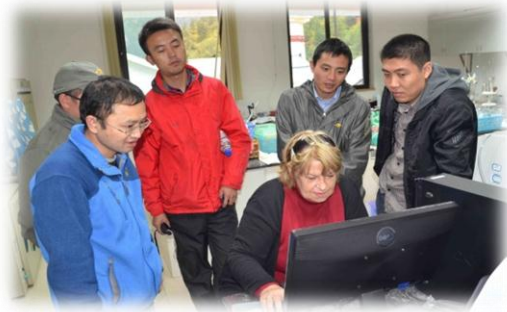
Joint research projects

- *Items: 12*
- *Total fund: 5 million+(RMB)*
MOST :4 items,4million+(RMB)
S&T Department of Sichuan Province: 3 items,1million+(RMB)

Publications: 20+papers +1 monographs

Exchange of Scholars :40+

- *PIFI-visiting professor: 5 items, Prof. Plenković-Moraj Anđelka...*
- *University of Zagreb, S&T Department of Sichuan Province, Jiuzhaigou National Preserve Managemet Bureau, CIB....*



Solid foundation for Cooperation

MOU

- *University of Zagreb--S&T Department of Sichuan Province :2012*
- *University of Zagreb--CIB :May, 2013*



2012, The ceremony of *"Memorandum of Understanding between S&T Department of Sichuan Province of P.R.C. and University of Zagreb ,Croatia"*



2013, The ceremony of *"Research Agreement between Chengdu Institute of Biology and University of Zagreb"*

China-Croatia Joint Research Centre for Ecological Environment Protection

- The Joint Research Centre was established on May, 2014



刘延东：“加强中、克生态环保领域的合作有战略意义和广阔前景，相关单位在九寨沟的合作是中-克科技合作的典范”

Signing Ceremony

China-Croatia Joint Research Centre for Ecological Environment Protection

Orientation:

- *Carry out cooperative research in the field of natural heritage ecological protection*
- *Enhance the level of scientific research, protection and management for the **Jiuzhaigou National Preserve and Plitvice Lakes National Parks** .*
- *Based on the needs of China and Croatia, expand cooperation to the area of ecological protection, resource utilization, characteristics of crop cultivation, soil remediation and green recycling agriculture in the upper reaches of the Yangtze River reservoir.*
- *Promote the establishment of scientific research cooperation and personnel exchange mechanism, and gradually establish a platform for environmental protection and sustainable use of resources between China and Eastern Europe.*
- *Deepen the scientific and technological exchanges between China and the countries of Central and Eastern Europe.*
- *Promote the strategic cooperation between China and the partner countries of the The Belt and Road Initiative in the area of science and technology, education and culture.*

Expectation:

- *World-class Joint Research Centre*

Welcome to Western China

