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# Research Interests

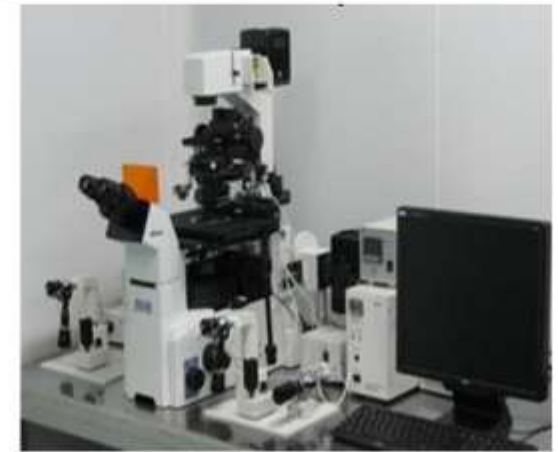
—— Resource protection  
of medical plants and  
molecular authentication  
of medical plants

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# Research platform



**Chemical analysis instruments**



**Molecular identify**



**Microscopy instruments**

# Research program

**Host the fourth national survey  
in Inner Mongolia materia medica resources.**



# Some medicinal plant photographs in Inner Mongolia survey



*Amygdalus mongolica* (Maxim.)  
Ricker



*Inula salsoloides* (Turcz.) Ostenf.



*Lilium concolor* Salisb.



*Polygonum viviparum* L.



*Eritrichium rupestre* (Pall.)  
Bunge



*Aconitum barbatum* var.  
*puberulum* Ledeb.



*Cymbaria mongolica* Maxim



*Trollius chinensis* Bge.



*Scorzonera glabra* Rupr.



*Aquilegia viridiflora* Pall.



*Orobanche caerulescens* Steph.



*Cynomorium songaricum* Rupr.

# Some medicinal plant photographs in Inner Mongolia survey



*Stellera chamaejasme* L.



*Veronica didyma* Tenore.



*Arenaria capillaris* Poir.



*Papaver nudicaule* L.



*Scutellaria viscidula* Bunge



*Aster ageratoides* Turcz.



*Scutellaria baicalensis* Georgi



*Rehmannia glutinosa* Libosch.



*Sanguisorba officinalis* L.



*Dracocephalum rupestre* Hance



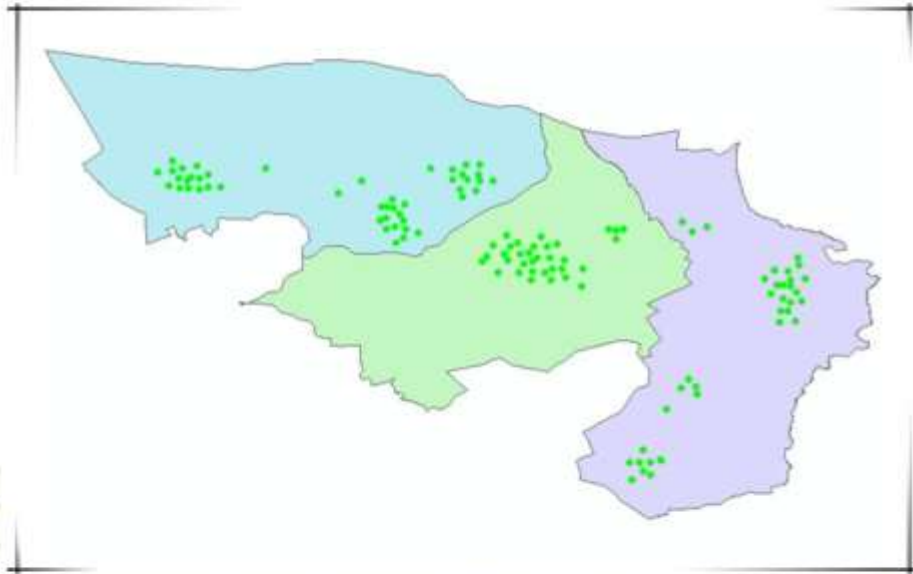
*Hedysarum polybotrys* Hand.-Mazz



*Caragana microphylla* Lam.

# Resource protection of special medical plants

Research on the multi-factor comprehensive regionalization of *Cistanche deserticola* in Alxa League.



The sampling sites map of *Cistanche deserticola* in Alxa league

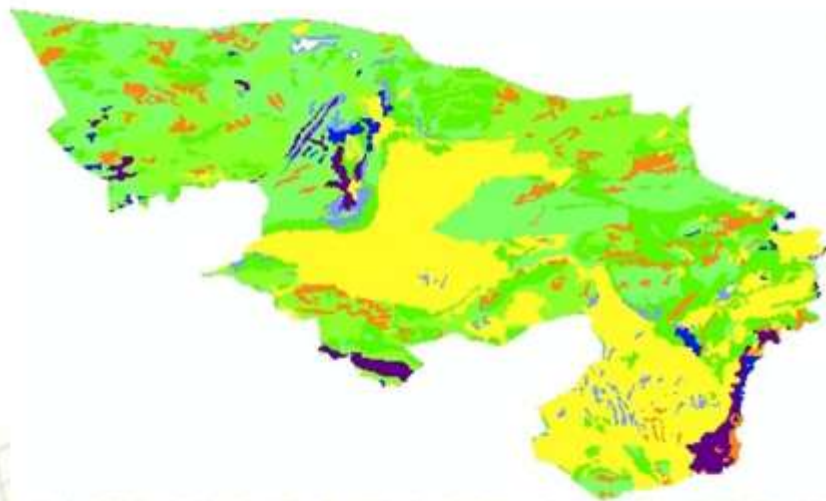


*Cistanche deserticola* photographed from our field investigation

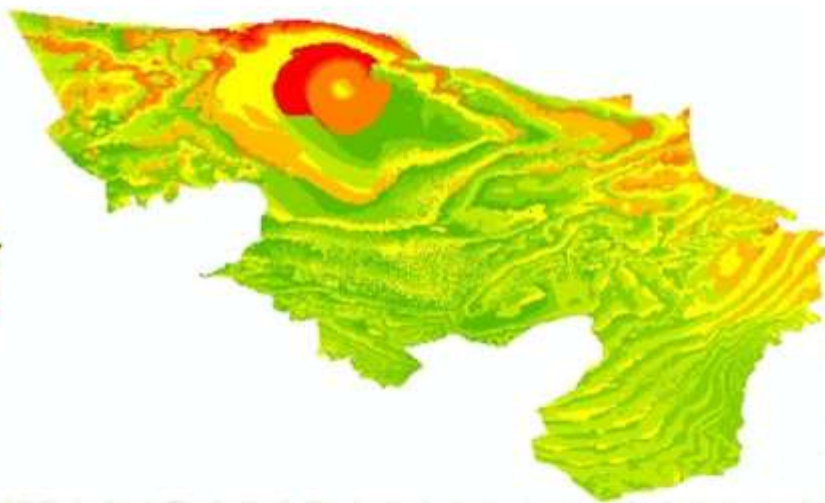


# Resource protection of special medical plants

## Research foundation using remote sensing to monitor ecological factors of *C. deserticola*



The remote sensing image of sand content of soil from Alxa league in 2013



The remote sensing image of soil available water capacity from Alxa league in 2013

# Resource protection of special medical plants

## Resource protection base of Monglolia medicine



*Astragalus membranaceus*



*Astragalus membranaceus*

# Resource protection of special medical plants

## Resource protection base of Monglolia medicine



*Lycium barbarum* L.



*Carthamus tinctorius* L.

# Molecular authentication of medicinal plants

15 'Digeda' medicinal plants and 29 'Digeda' prescriptions were investigated.



*Parnassia palustris*



*Gentianopsis barbata*



*Lomatogonium rotatum*



*Halenia elliptica*



A Ga Ri-35



Li Dan-8 San



Gu Ri Gu Mu Chao Ke Dun



Digeda-4 Tang

# Molecular authentication of medical plants

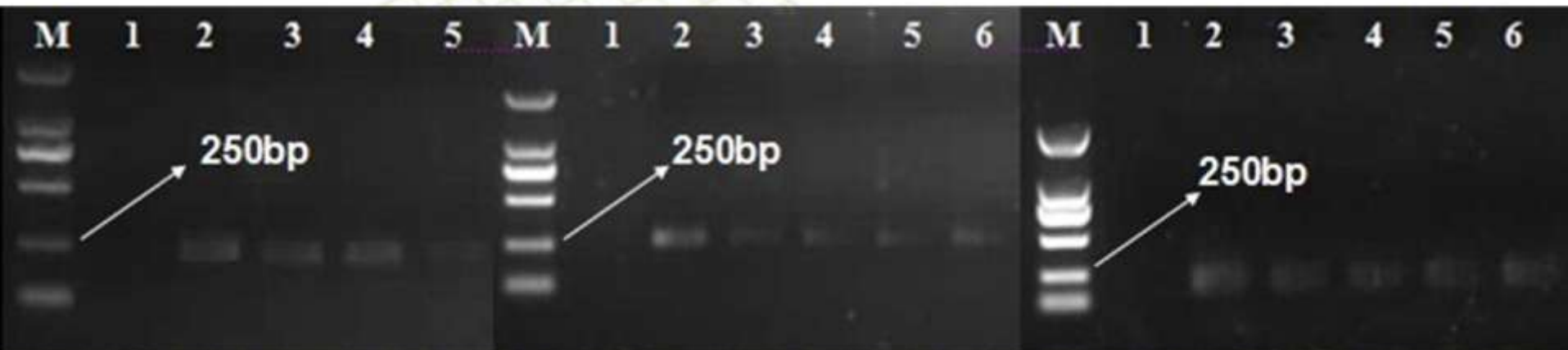
## Molecular authentication of ten kinds of 'Digeda' Mongolian medicine

Sample ID	Sample Name	Collection	Packet Ingredients
MPM01	Digeda-3 Tang	Hulun Buir	Unlabeled
MPM02	Digeda-4 Tang	Alxa League	Unlabeled
MPM03	Digeda-8 San	Alxa League	Unlabeled
MPM04	Digeda-4 San	Xilingol League	Unlabeled
MPM05	Li Dan-8 San	Tongliao	Corydalis Bungeanae Herba
MPM06	Digeda-4 Tang	Tongliao	Lomatognii Herba
MPM07	E Ri He Mu-8	Hulun Buir	Violae Herba
MPM08	Gu Ri Gu Mu Chao Ke Dun	Hulun Buir	Corydalis Bungeanae Herba
MPM09	Yi He Ha Ri-12	Hulun Buir	Corydalis Bungeanae Herba
MPM10	A Ga Ri-35	Hulun Buir	Violae Herba

# Molecular authentication of medical plants

## Molecular authentication of ten kinds of 'Digeda' Mongolian medicine

10 'Digeda' MPM samples containing *Lomatogonium rotatum*, *Viola philippica* or *Corydalis bungeana* as raw materials were successfully evidenced by PCR with specific bands.



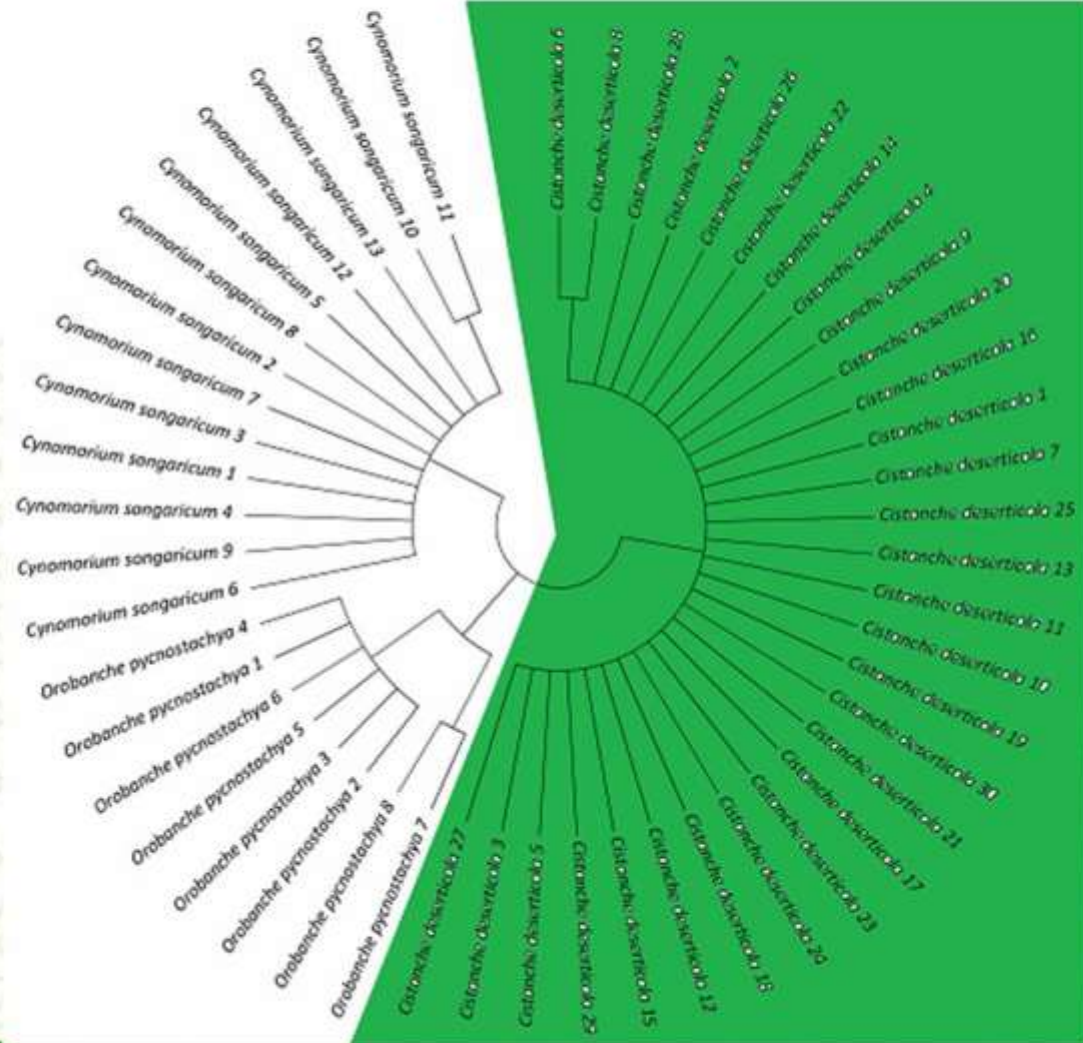
*L. rotatum* specific primer amplification products

*V. philippica* specific primer amplification products

*C. bungeana* specific primer amplification products

# Molecular authentication of medical plants

NJ Syetematic tree  
based on ITS  
sequences of  
Cistanches Herba  
and its adulterants



# Future Plan

- ❖ Germplasm resources protection, cultivar improvement, and sustainable use of Mongolia medical plants.
- ❖ Further investigation and research in traditional Mongolian medicines to improve herbal medicine availability and ensure the safe medication.
- ❖ Study and application of DNA fingerprint analysis, DNA identification and DNA barcoding in medical plants.





# OMICS Group

## Conference

- 6<sup>th</sup> World Congress on Biotechnology  
November 30-December 02, 2015 HICC-Hyderabad, India
- [www.biotechnologycongress.com](http://www.biotechnologycongress.com)

# **Future Plan**

**Welcome to Inner Mongolia,  
China!**

**Welcome to join us!**