

Mongolian rare plant conservation and sustainable use

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Background

Mongolia is a landlocked country in Central Asia, located between China and Russia. The terrain is one of mountains and rolling plateaus, with a high degree of relief. The total land area of Mongolia is 1,564,116 square kilometers (603,909 sq mi). The country is high, cold and dry. It has an extreme continental climate with long, cold winters and short summers, during which most precipitation falls. Mongolia has 257 cloudless days a year, and it is usually at the centre of a region of high atmospheric pressure. Precipitation is highest in the north, which averages 200 to 300 millimeters (7.9 to 13.8 in) per year, and lowest in the south, which receives 100 to 200 millimeters (3.9 to 7.9 in). The country has an average elevation of 1580 meters. The nation's closest point to any ocean is approximately 960 kilometers (600 mi) from the country's easternmost tip bordering northern China to Chongjin in North Korea along the coastline of the Sea of Japan. (Jamiyandorj Kh., 2011)

Mongolia's weather is characterized by extreme variability and short-term unpredictability in the summer, and the multiyear averages conceal wide variations in precipitation, dates of frosts, and occurrences of blizzards and spring dust storms. (Bayarmaa Kh., 2008)

The environment division of Mongolia has focusing on environmental change to move a proposal for a green environment on the restoring plants that raring. Due to the climate change and human affections, including cutting trees and grazing, most of the green zones have diminished around the steppe areas. Therefore, climate has been getting warmer and green environments endangered, the government of Mongolia approved the project "Mongolian rare plant conservation and sustainable use of action" in east and central areas, which is trying to solve those problems in theoretical and practical level.

The A on the photo is where the plants were collected from and the B is the project area, which was losing its main indicator plants to weeds. A and B are approximately 600 km far away each other, so their condition and its ecosystem, especially plants were considerably different.



Photo 1. Project area on the map of Mongolia

The reasons that why the project needed to focus on a planting was firstly, desertification is still exist and its extensions, which is causing high aridity and furthermore, facility defection in nearby countries such as Korea and Japan etc. So the problem is not about only inside border of Mongolia.

The chosen plants had a several benefits in use, especially for medicine, grassland and ornament also expanding the green environment. The main purpose of the project was to plant them otherwise to adapt in the chosen area (Kheseg Usnii Denj, Kherlenbayan-Ulaan village, Khentii province). The purpose of this study is collecting some natural endangered four species of plants, studying the possibility of cultivating them with seed and root in irrigated conditions in Kherlenbayan-Ulaan village. This has set the following objectives to achieve this goal:

- To determine the endangered four species of plants some morphological test, their usage and practical description of the importance.
- To determine possibility of planting, acclimatizing and cultivating endangered four species of plants with seed and autonomic organ.
- To plant already cultivated four endangered species of plants with seed and autonomic organ and establish the source plant plantation.

Lilium dahuricum, Sophora flavescens, Paeonia Lactiflora, and Aconitum Kusnezoffii are now planted in B with abiological watering condition.

Student's individual participation:



Student's actions were on a practical ways:

First of all, choosing the soil, which must be

Photo 2. The look after 2 years.

able to facing to the sun, otherwise shadowless, flat and windbreak. For make the soil clean, the action was taking away rocks and old roots, then the soil was mined about 15 cm. We buried the seeds with moistened lab soil for 14-15 days before we start cultivating them. To water: When time to water we were pouring at 5 or 6 am, 13 and 17- 20, which can solve steaming and water loss.

Endangered four species cultivating possibility valued by score 3:

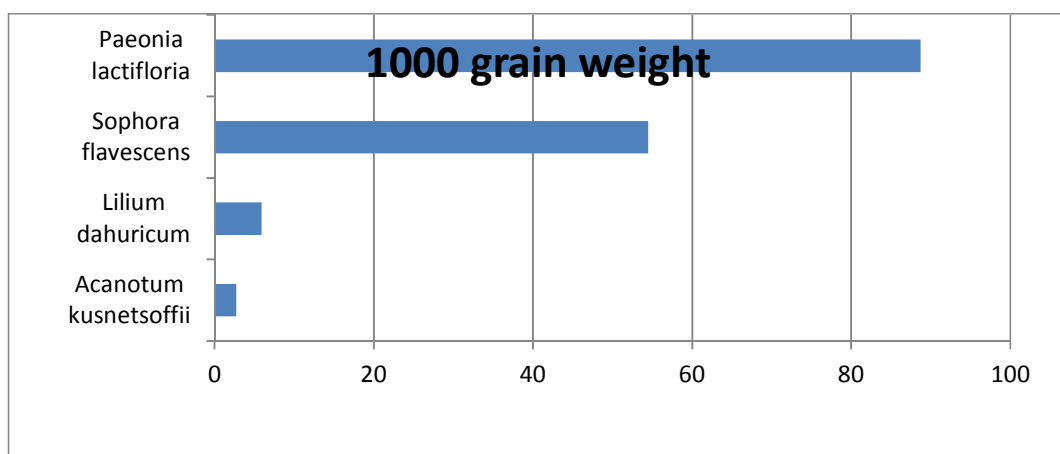
Cultivating possibility

Plants	Seed growth	Autonomic organs	Heights and shoot size	Cold resistance	Disease and pest resistance
Цагаан цээнэ (<i>Paeonia lactiflora</i> Pall)	3	3	3	3	2
Кузнецовын хорс (<i>Aconitum kusnezoffii</i> Reinchb)	3	3	3	3	2
Дагуур сараана (<i>Lilium dahuricum</i> Ker-Gawl)	3	3	3	3	2
Шаравтар лидер (<i>Sophora flavescens</i> Soland)	3	3	3	3	2

According to our research, it is 14 points and can be cultivated.

1000 grain weight is essential to the quality of the seed and acclimating. In our study, endangered four species of plants, selected by a field survey from three plant geography circle Mongolian Daguur, East Mongolian and Khyangan, 1000 grain weight were normal and upward trend.

1000 grain weight of four endangered species of plants (g)



For these plants, Paeonia Lactiflora and Sophora flavescens were 54.5 – 88.7g, Acanotum Kusnetsoffii and Lilium dahuricum 2.7-5.9 g for 1000 grain weight.

Results and Conclusion

Endangered four species of plants, selected by a field survey from three plant geography circle Mongolian Daguur, East Mongolian and Khyangan, species genetic collection pitomik has been created in the irrigated conditions in Kheseg Usnii Denj of Kherlen Bayan-Ulaan village, Delgerkhaan soum, Khentii province.

1. Local eco- forms of Даруур сараан (*Lilium dahuricum* Кер-Гавл), Цагаан цээнэ (*Paeonia Lactiflora* Pall), Шаравтар лидер (*Sophora flavescens* Soland) Куцнецовын хорс (*Acanotum Kusnezoffii* Renchb) are planted their seed, then flowered in 3 years and started giving their seeds. These are show the possibility of they can be acclimatized and cultivated in the irrigated conditions steppe zone of Kheseg usnii denj of Kherlenbayan-Ulaan village.

2. Дагуур сараан (*Lilium dahuricum* Ker-Gawl), Цагаан цээнэ (*Paeonia Lactiflora* Pall), Шаравтар лидер (*Sophora flavescens* Soland) Куцнецовын хорс (*Acanotum Kusnezoffii* Renchb) have regenerated 4-7 days, flourished 7-20 days, ongoing elaborated 12-14 days and ability of grow with seed and roots, plant height, resistance to cold are rated max score 3 with cultivating possibility and 2 score with disease resistance.
3. Introduction survey shows that we have got first regeneration of pure seed fundtotal of 1650 g including 150 g of Daguur saraan (*Lilium dahuricum* Ker-Gawl), 1000 g of White peony (*Paeonia* Pall), 300 g of leader of the Yellow (*Sophora flavescens* Soland), 200 g of Kutsnyetsovn soil (*Acanotum Kusnezoffii* Renchb), and furthermore favorable conditions have been developed to create plantatsi with 250 m². Therefore, this project shows that there is a possibility to regenerate rest of the rare and very rare plants in Mongolia.

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