Consideration of Proposals for Amendment of Appendices

A. PROPOSAL

Inclusion of Cistanche deserticola Ma in SITES Appendix .

B. PROPONENT

The People's Republic of China

C. Supporting Statement

1. Taxonomy

1.1. Class Dicotyledonae
1.2. Order Tubiflorae
1.3. Family Orobanchaceae
1.4. Scientific Name Cistanche deserticola Ma 1960
1.5. Scientific Synonyms C. ambigua (Bunge) G. Beck
1.6. Common Names Desertliving Cistanche
1.7. Code Number

2. Biological Parameters

2.1 Distribution

This species is a unique parasitic herb, distributed in Gansu, Shaanxi provinces, Xingjiang Uygur Autonomous Region, Ningxia Hui Autonomous Region, Inner Mongolia Autonomous Region of China. It mainly grows in Xingjiang Uygur Autonomous Region (Fuhai, Habahe, Fuwen, Chabuchaer, Jinghe, Wushu, Jumushaer, Qitai, Bole, Fukang, Manasi, Hebukeseer, Huocheng, Hutubi), Inner Mongolia Autonomous Region (Alashanzuoqi, Ejinaqi, Alashanyouqi, Wulatehouqi), Qinghai province (Haile, Hainan), Gansu province (Wuwei, Zhangye, Jiuquan), Ningxia Hui Autonomous Region (Zhongwei, Lingwu, Yanci). They are mainly parasitized on the roots of *Haloxylon ammodendron* (C. A. Mey.) Bunge and *H. persicum* Bunge ex Boiss. (Family *Chenopodiaceae*). The drug is commonly named as *Suosuo Dayun*.

2.2. Habitat Availability

Cistanche deserticola is parasitized on the roots of *Haloxylon ammodendron* and *H. persicum* in desert areas with different season weather, obviously different temperature between day and night, plenty of sunlight, fine sandy and slightly acid soil at the elevation of 225-1150 m.

2.3. Population Status

Inner Mongolia Autonomous Region is the top native producing area of the species where the quantity of the drug is the best of all; the annual production is about 70 tons at present. Cistanche deserticola Ma produced in Ningxia Hui Autonomous Region is used only in the local region in recent years. It is produced in Gansu province for a long time, but the production decreased quickly for indiscriminate collection. This species distributes widely in North Xingjiang Uygur Autonomous Region where annual output is about 50 tons.

2.4. Population Trend

The population of the species decreased, distributive area shrunk, resource deposit declined. The main seasons are:

(1) The whole herb of Cistanche desertecola Ma is used as natural tonic drug for improving kidney function. More and more people know that it is helpful for impotence and seminal emission, so the demand of international market has grown quickly in recent years.

(2) With the development of living quality in China, Chinese people need more tonic drug including Cistanche deserticola Ma to improve their health.

(3) Because Cistanche deserticola Ma is a parasitic herb growing on the roots of Haloxylon

ammodendron and H. persicum in desert areas. It is difficult to cultivate Cistanche deserticola Ma and to develop the population quickly.

2.5. Geographic Trends

For over exploitation, the population of this species was getting less and less and its distributive areas shrunk dramatically. In addition, people collected it only, but not propagate it. Now it is difficult to find the herb in 20km region around the residential area in Inner Mongolia Autonomous Region and in 100km region around the residential area in Xingjiang Uygur autonomous region.

2.6. Role of the species in Ecosystems

This species is a parasitic plant which grows in desert areas. Its community includes shrub layer and herb layer. The main constructive species of shrub layer is Haloxylon ammodendron; the accompanying species varies in different sites. Cistanche desertecola Ma is parasitized on the roots of *Haloxylon ammodendron*.

2.7 Threat

The main threats of this species are that the population declined, distributive area shrunk, and deposit decreased. The main reasons are that the parasitized plant has destroyed on a large scale and Cistanche desertecola Ma has exploited. We need carry out a method to control the exploitation and trade; otherwise it will extinguish quickly.

3. Utilization and Trade

3.1. National Utilization

Cistanche desertecola Ma is a famous traditional medicine, named as "Desertliving Ginseng". It has been used as a medicine for about 1800 years. “Sheng Nong Ben Cao Jing” and “Ben Cao Gan Mu” recorded that the herb could be used as tonic. “The Pharmacopoeia of the People’s Republic of China” recorded that the drug is used for the treatment of impotence, seminal emission, and general weakness with lassitude of the loins and knees, constipation and infertility. Many tonic preparations and spirits consisted of the drug in ancient China. At present, the preparations consisting of the drug cover tablets, pills, powder and oral liquid for the treatment of sexual function obstruction, spermacrasia, cataract, etc.

3.2. Legal Trade

The commodity of the species mainly exported to Japan, Hongkong, and Southeast Asia. The world trade volumes has grown stably. From fifties to sixties, the commodity of Cistanche desertecola Ma was mainly collected in Inner Mongolia, and purchases were more than sales all the time. From nineteen seventies, because of over exploitation, the resource in Inner Mongolia Autonomous Region decreased gradually, and the resource in Xingjiang Uygur Autonomous Region was not developed to utilize, the purchase tended to decline. With the utilization of Cistanche desertecola Ma in Xingjiang Uygur Autonomous Region, purchase rose obviously. The annual purchases have kept 400-500 tons at the beginning of eighties, and world trade volumes were up to 120 tons per year. With increase of the world trade volumes, the resource of the species decreased dramatically. The world trade volumes is intending to decline in recent years, and now the whole volumes of Cistanche desertecola Ma even can’t meet the foreign market.

3.3. Illegal Trade

Considering its obvious effects and high demand in national and international markets, it is traded in smuggling and other illegal methods.

3.4. Actual or Potential Trade Impacts

At present, the species compacts with the main threats of population decrease, distributive area shrinkage, and resource deposit reduction. For its marked curing effects, people will continue to collect Cistanche deserticola Ma in wild to meet the high demand both national and international markets. So the population of the species will suffer to further decrease.

3.5. Captive breeding or artificial propagation

Artificial propagation of this species got success in Arashanqi Cistanche Experiment Station at the beginning of eighties in Inner Mongolia Autonomous Region. This achievement was awarded the

Second Grade Prize of National Science and Technology Developing. At present, the scientists are undertaking studies on technique spreading; but it hasn't got success till now.

4. Conservation and Management

4.1. Legal Status

4.1.1 National

The drug is one of the regular traditional drugs. Because of over exploitation and destruction of parasitized plant, its population has been getting less and less, its distributive areas has been shrinking in recent years. In order to protect the resource, the species is cataloged in "Red Data Book of China Plants" and will be recorded in the list of State Protected Species as the Second Grade.

4.1.2 International

Considering the stern threat of the population, the species should be included in Appendix of CITES immediately for effective regulation of trade.

4.2. Species management

4.2.1 Population Monitoring

This species are not undertaken effectively.

4.3. Control Measures

4.3.1 International Trade

The effective control measure of Cistanche deserticola Ma hasn't been carried out in international trade.

4.3.2 Domestic Measure

For assuring further demand, the main measure is undertaken to decrease the export volumes of the drug at present. Meanwhile, other measures also have been taken to protect it. For example, right methods for collecting are taught; *Suosuo* forest protecting areas are constructed; researches on cultivation technique are encouraged.

5. Information on Similar Species

The species has 3 substitutes.

(1) C. tubulosa (Schenk) R. Wight

Leaves of upper stem broad lanceolate, flat at base, acuminate at apex, veins not obvious. Raceme terminal, bract obovate, bractlet long slated, slightly shorter than sepals, corolla funnel, purple, surface of seed honeycomb-shaped. It is parasitized on the root of Tamarix plants.

(2) C. salsa (C.A. Mey) G. Beck

Herb 10-45 cm high, leaves ovate or ovoid lanceolate; corolla nearly lipped, segments blue purple, tube white. It is parasitized on the roots of Kalidium foliatum and K. gracile.

(3) C. sinensis G. Beck

Stem 2-4-branched at base, not branching on upper part, bract oblong lanceolate or lanceolate, densely silky hair on dorsal surface, usually longer than sepals; bractlets slated and narrow oblong, silky hairy; calyx nearly campanulate, 4-parted, parts oblong lanceolate; corolla pale yellow, turning black when dry. Capsule 2-parted. It is parasitized on the roots of Reaumuria soongarica, Ammopipanthus mongolicus, Potaninia mongolica.

6. Other Comments

Cistanche deserticola Ma is distributed only in China.

7. Additional Remarks

Original Plant

Perennial parasitic herb. Stems fleshy, yellow, 10-45 cm high. Leaves scaleshaped, yellow-brown, imbricated, ovate or ovate lanceolate, denser on lower part. Spikes 5-20 cm long, about 5 cm wide, flowers many and dense, bracts ovate lanceolate, 1.5 cm long; bracteoles 2, narrow lanceolate, nearly as long as calyx; calyx campanulate, 5-lobed, segments nearly round; perianth nearly labial, 5-divided at apex, segments blue purple, tubular parts white; stamens 4, hairy on anthers and at base of filaments; ovary 4-celled.Capsules elliptic, 2-lobed, styles persistent.

Collection The drug is collected in spring before sprouting, removed from the spikes, cut into sections and dried in the sun.

Drug Description Compressed-cylindrical, slightly curved, 3-15 cm long, 2-8 cm in diameter. Externally brown or greyish-brown, densely covered with imbricate fleshy scales, usually the apex of

scales broken. Texture heavy, hard and slightly flexible, unbreakable, fractured surface brown and showing brownish dotted vascular bundles, arranged in wavy rings. Odour slight; taste sweetish and bitterish.

Constituents The fat soluble part of the drug separated 6-methyl indole, 3-methyl-3 ethyhexane, 2,6-bis(1,1-dimethylethy)-4-methyl phenol, heptadecane, 4,6-dimethyl dodecane, 2-methyl-5-propyl nonane, nonadecane, eicosane, henicosane. The water soluble part separated N,N-dimethyl glycine methy ester, betaine, sitosterol, daucosterol, triacontanol, acteoside, 8-epiloganic acid, stearic acid, 2-nonacosanone, bis-2-ethyl-hexyl-phthalate.

Pharmacological Actions Tests show it can increase the weight of rats and also show activity in lowering blood pressure. It is also effective in stimulating salivary secretion and has showed respiration-paralizing action.

Actions and Indications The drug is used to reinforce the kidney, to moisturize dryness, to relax bowels; for the treatment of impotence, seminal emission, general weakness with lassitude of the loins and knees, constipation and infertility.

Dosage 6-9 g.

Reference

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