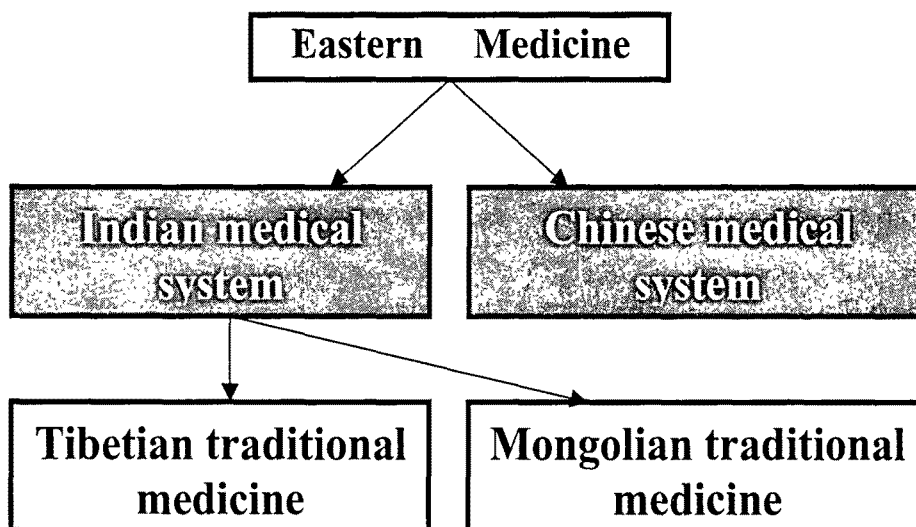


Mongolian Traditional Medicine and Mongolian Medicinal Plants

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Mongolian Traditional Medicine based on Buddhist philosophy . It belongs to the Eastern medicine originated from Indian and Tibetan traditional medicine.



- ❖ The Mongolian Traditional medical system is one of the world's oldest known medical traditions.
- ❖ It is an integral part of Mongolian culture and has been developed through many centuries.
- ❖ We believe that the origin of the Mongolian medical tradition is as old as civilization itself.
- ❖ Ancient Nomadic aims that were adjusted to the severe weather condition and passed long difficult way to fight against diseases and lived till nowadays.

Stages of development of MTM Early stage – Shamanism

Origin of traditional medicine of Mongolia has a close relation with the healing methods of shamanism in ancient Mongolia.

During Altan Khan period (1507-1582) Buddhism developed further thereby started to replace shamanism.

XVI century – Introduction of Buddhism in Mongolia

1921-1930 – New era of traditional and Western medicine combination and development.

In the beginning of XX century Mongolia received its independence and revival period took shape in Mongolia.

Government turned to new science and education.

On the base of traditional medical system the theory of Western medicine developed in Mongolia and all areas of modern medicine was established.

1930 – Repression

The political changes in Mongolia in 1937 led to a destruction of monasteries and traditional medical institutions followed by executing or expelling monks. As medical doctors were frequently Buddhist monks trained in Mongolian medicine, they were also persecuted at that time.

1930-1970 - Break down of Mongolian traditional medicine and Buddhism.

1970-1990 - New stage of development of traditional medicine in concept of modern science.

1990 – till now - Break through in the development of MTM.

1999 – Government program on development of traditional medicine.

Differences between Traditional and Folk medicine

Folk Medicine

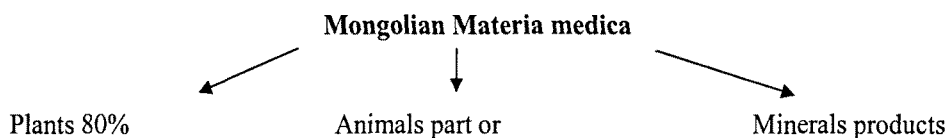
- ✓ More practical directions and dependable
- ✓ More empiric
- ✓ Knowledge and practice were inherited orally by family line
- ✓ Plant and raw materials of medicine were named by local name. It means the same plant had several names in different regions of Mongolia.

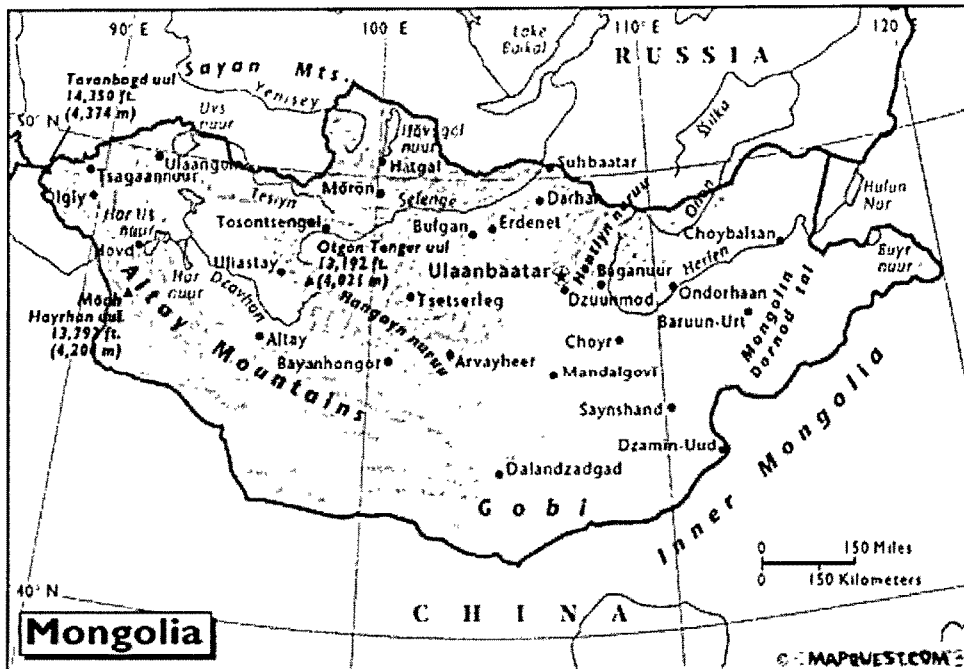
Traditional medicine

- ✓ Independant, based on philosophy and theories
- ✓ Systematic education
- ✓ Uses scientific names of plants and raw materials

Directions and functions of Mongolian traditional medicine

- **Diagnosis** Pulse reading, urine and tongue examination, questioning
- **Treatment** Food and diet therapy
 Behavior
 Medication
 Traditional treatment:
 - Mongolian needling therapy
 - Moxibustion
 - Blood letting
 - Point message therapy
 - Mud and mineral water therapy
- **Prevention**





Mongolia stretches across Central Asia and occupies an area of 1.566 million square kilometers of mountains, steppe, and desert. Mongolia is land-locked between Russia and China and has no access to the sea.

Peculiarities of Mongolia's geography

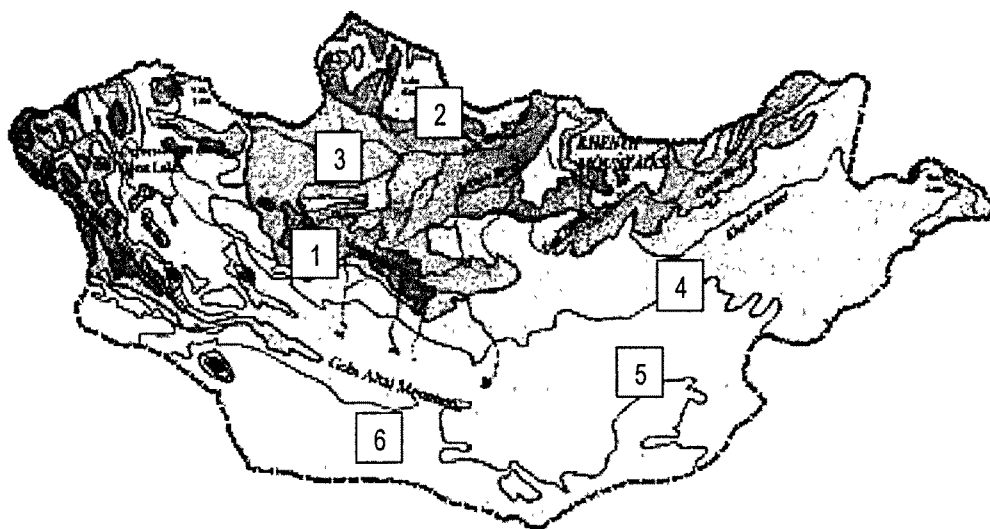
Although famous for its seemingly endless expanses of Steppe, Mongolia is mountainous country with almost 80% of its territory located at an elevation of 1.000 m or more above sea level. The average elevation is 1580 m above sea level with the highest being Tavan Bogd (4374 m) and the lowest depression being Khuh Lake Hollow (560 m)

Climate

Mongolia has an extreme continental climate with hot summers, cold winters, windy and dry springs, and pleasantly warm autumns. January is the coldest month of the year with a mean temperature of -35°C in the northern parts (with the lowest temperature of -50°C at the Depression of Great Lakes). Summers are short. Mean July temperatures range from 18-26°C with a maximum of 40°C.

Natural zones of Mongolia

The territory of Mongolia is divided into six natural zones (alpine, taiga, wooded, steppe, desert-steppe) and with markedly different terrain, climate, flora, and fauna.



Natural zones of Mongolia

1 - Alpine zone, 2 - Taiga, 3 - Forest Steppe, 4 - Steppe, 5 - Desert Steppe, 6 - Desert

More than 860 medicinal plants growing in Mongolia.

In 1973-2003 were investigated more than 80 medicinal plants of Mongolian flora with respect to the

contents of biological active compounds in it 650 pure substances were isolated and identified their structures.

By the spectral data elucidated the structure of more than 130 new natural compounds from Mongolian plants.

Cultivation of Medical plants



Ephedra sinica

Astragalus mongholicus Bge.
Hippophae rhamnoides L.
Sophora alopecuroides L.
Glycyrrhiza uralensis Fisch.
Ephedra sinica
Paeonia anomala L.
Rhodiola rosea L.
Asparagus officinalis

A. Useful plants (economic)

1. *Abies sibirica* Ldb.
2. *Achillea asiatica* Serg.
3. *Aconitum kuznezoffii* Reinchb.
4. *Adonis sibirica* Patr. Ex Ldb.
5. *Allium altaicum* pall.
6. *Allium galanthum* Kar. Et Kir.
7. *Allium obliquum* L.
8. *Armeniaca sibirica* (L.) Lam.
9. *Astragalus mongolicus* Bge.
10. *Cistanche deserticola* ma
11. *Crataegus dahurica* Koehne
12. *Cynomorium songaricum* Rupr.
13. *Dianthus superbus* L.
14. *Ephedra equisetna* Bge.
15. *Ephedra sinica* Stapf
16. *Erysimum flavum* (georgi) Bobr.
17. *Gentiana algida* pall.
18. *Gentiana barbata* Froel.

19. *Glycyrrhiza uralensis* Fisch.
20. *Helichrysum arenarium* (L.) Moench
21. *Hippophae rhamnoides* L.
21. *Juniperus pseudosabina* Fisch. et Mey.
22. *Paeonia anomala* L.
23. *Physochlaina physaloides* (L.) G. Don
24. *Plantago major* L.
25. *Pteridium aquilinum* (L.) Kuhn
26. *Rhododendron adamsii* Rehd.
27. *Rhodiola quadrifida* (Pall.) Fisch. et Mey.
28. *Saposhnikovia divaricata* (Turcz.) Schischk.
29. *Saussurea involucrate* (Kar. et Kir.) Sch. Bip.
30. *Saxifraga hirculus* L.
31. *Scutellaria baicalensis* Georgi
32. *Sophora alopecuroides* L.
33. *Thelypteris phegopters* (L.) Sloss.
34. *Valeriana officinalis* L.

B. Rare plants

1. *Acorus calamus* L.
2. *Adonis mongolica* Simonovicz
3. *Alhagi sparsifolia* (Keller et Shap.) Shap.
4. *Allium macrostemon* Bge.
5. *Allium nerinifolium* (Herb.) Baker
6. *Amygdalus mongolica* Maxim.
7. *Ammopiptanthus mongolicus* (Maxim. ex Kom.) Cheng f.
8. *Androsace longifolia* Turcz.
9. *Astragalus gobicus* Hanelt et Davazamc
10. *Brachanthemum mongolorum* Grub.
11. *Cleome gobica* Grub.
12. *Codonopsis clematidea* (Schrenk) Clarke
13. *Elaeagnus moorcroftii* Wall. ex Schlecht.
14. *Euphorbia pallasii* Turcz.
15. *Ferula ferulaeoides* (Steud.) Korov.
16. *Glycyrrhiza inflata* Batal.

17. *Guildenstaedtia monophylla* Fisch.
18. *Hegemone lilacina* (Bunge) Bunge
19. *Lancea tibetica* Hook. f. et Thoms.
20. *Orchis fuchsia* Druse
21. *Orchis militaris* L.
22. *Oxytropis junatovii* Sanz.
23. *Oxytropis monophylla* Grub.
24. *Paeonia lactiflora* Pall.
25. *Physochlaina albiflora* Grub.
26. *Potaninia mongolica* Maxim.
27. *Rhamnus parvifolia* Bge.
28. *Rhaponticum carthamnoides* (Willd.) Iljin
29. *Rosa xanthina*
30. *Sophora flavescens* Soland.
31. *Stipa pennata* L.
32. *Viburnum mongolicum* (Pall.) Rehd

Biosynthetic pathways observed in Mongolian plant :

In secondary metabolites, one or more hydrogen atoms in carbon cycle are replaced by hydroxyl giving

more oxidized derivatives. Such compounds have been found in *Aconitum*, *Thermopsis*, *Ammopiptanthus* species.

Another way of biosynthesis of more oxidized derivatives is N-oxidation. This kind of oxidation is observed in novel alkaloids isolated from *Thalictrum simplex*.

The third way of oxidation is: in main cycle of secondary metabolites, hydroxyl is replaced by carboxyl. For example, novel compounds from *H. erectum*, *A. mongolicus*.

Etherification, acetylation, acylation, and cyclization are the fourth way of biosynthesis of more oxidized derivatives. 11-acetyl, 1,19-epoxydenudatine from *A. barbatum* and dauroside A, B, C, D from *H. dahuricum* are the examples of such an oxidation.