



University of Kentucky  
UKnowledge

---

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII  
International Rangeland Congress

---

## Observation on the Pollen Morphology of 5 Species of *Caragana* Fabr. Plants in the Alashan Desert

Tao Wan

*Inner Mongolia Agricultural University, China*

Ping Cai

*Inner Mongolia Agricultural University, China*

Weidong Yi

*Inner Mongolia Agricultural University, China*

Xiaoming Zhang

*Inner Mongolia Agricultural University, China*

Chenbo Zhang

*Inner Mongolia Agricultural University, China*

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/1-6/29>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

---

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact [UKnowledge@lsv.uky.edu](mailto:UKnowledge@lsv.uky.edu).

## Observation on the pollen morphology of 5 species of *Caragana* Fabr. plants in the alashan desert

Wan Tao ,Cai Ping ,Yi Weidong ,Zhang Xiaoming ,Zhang Chenbo  
 College of Ecol. and Env. Sci., Inner Mongolia Agric. Univ., Huhhot, Inner Mongolia 010019, P.R. China  
 E-mail: w antao425@ sohu .com

**Key words :** Pollen grain , Pollen morphology , *Caragana* Fabr. , Alashan desert

**Introduction** The Alashan desert is located in the Alashan highland of Inner Mongolia plateau . Many *Caragana* Fabr. species distributed in the desert and arid grasslands of the Alashan highland . They are very important for protection of the environment of the Alashan desert . Observation of the *Caragana* Fabr. pollen morphology from the plants in the Alashan desert can provide valuable information for some researches of how to use the desert plants .

**Materials and methods** The materials for the study were sampled in 2004~2005 . *Caragana* Fabr. Plants , integrated plants and pollen sample were uniformly gathered . Pollen sample was scattered on double sided pastern paper on carry matter desk equably and plating film by IB-5 hydronium spatter instrument . Sample are send into S-530 scan electron microscope , choose different magnify multiple and observe angle to go along observe and photograph for pollen sample . All datas of microspore surface characters are root in the average of 20 microspore(Wang Kaifa ,1983 ; Wan Tao ,1999) .

**Results and analysis** The abnormal pollen morphology of 5 species of *Caragana* Fabr. is  $(24.34 \sim 32.11) \mu\text{m} \times (11.31 \sim 20.27) \mu\text{m}$  which is belong to minitype . Others are middle pollen types(*Caragana tibetica* Kom .  $32.11 \mu\text{m} \times 20.27 \mu\text{m}$ ) which equator surface is long or exceed long sphericity ,  $P/E = 1.59 \sim 2.06$  . The polar surface is 3-split or 3-crack rotundity . Bourgeon apparatus belong to 3 aperture channels type and the channel is thin and length to the two poles , channel edge is tidiness ; Inside aperture sink or not evidence ; Microspore surface is reticulation or aperture ornamentation , mesh or aperture is quite fleet and some assume perforation shape at polar section or channel edge . These are related with collectivity characters of Leguminosae Papilionatae *Caragana* Fabr. (Table 1) .

**Table 1** Character of pollen morphology of Alashan desert *Caragana* Fabr. .

Species name	PA( $\mu\text{m}$ )	EA( $\mu\text{m}$ )	P/E	Shape	Germinators		Ornamentation
					Type	Trait	
<i>Caragana tibetica</i>	28.32~33.56	18.42~22.12	1.59	long sphericity	3aperture channels	Slightness and length to the two poles .	reticulation , mesh is fleet
<i>Caragana brachypoda</i>	27.18~31.05	12.94~14.91	2.06	exceed-long sphericity	3aperture channels	slightness and length to the two poles .	apertur , fleet , have perforation
<i>Caragana intermedia</i>	25.23~28.72	14.88~18.98	1.68	long sphericity	3aperture channels	slightness and length to the two poles .	apertur , fleet , symmetry
<i>Caragana stenophylla</i>	22.72~26.90	11.89~16.19	1.72	long sphericity	3aperture channels	Slightness and have film	apertur , fleet , asymmetry
<i>Caragana leucophloea</i>	21.55~26.32	9.56~13.66	2.15	exceed-long sphericity	3aperture channels	Narrow and inside aperture sink	apertur , small and fleet , no perforation

**Conclusions** *Caragana* Fabr. is belong to evolutionary species comparatively but not the furthest(not 3 aperture type) . Pollen morphology is outbalance part in collectivity character of plant , all characters of microspore accord with the genetic stability and diversity .

### References

- Wang Kaifa ,Wang Xianzeng . Generality of Palynological [ M ] . Bei Jing : Bei Jing University Press ,1983 .21~34 .  
 Wan Tao ,Wei Zhijun . Pollen patterns of moden plant Inner Mongolia grassland[M] , Hohhot China Agriculture Press ,1999 .72~74 .