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Distribution of crude fat for a halophyte (*Suaeda glauca*) growing in the Songnen grassland

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Key words : crude fat , halophyte , *Suaeda glauca* , distribution , Songnen grassland

Introduction The United Nations Environment Programme estimates that approximately 20% of agricultural land and 50% of cropland in the world is salt stressed (Flowers and Yeo ,1995) . In China , about 130 million ha of soil was affected by salinity and alkalinity . How to restore and utilize saline and alkaline soil has become very important in this region . *Suaeda glauca* , a halophyte , which can survive salt concentration equal to or greater than 2‰ and is rich in fat , is widely distributed in the degraded grassland in Songnen Plain . In recent years , many researchers have paid much attention to the character of high content of fat in the seeds of *Suaeda glauca* , but little research has been made on how crude fat (CF) distribution varies with different parts and developmental states of plants .

This paper aimed to evaluate the dynamic change of crude fat at different stages of development of plants in order to explore the economic value of *Suaeda glauca*

Materials and methods

***Suaeda glauca* sampling** The sampling for *Suaeda glauca* was conducted on degraded grassland located at Dumeng (44° 41' N , 123° 45' E) , Heilongjiang Province , China , in summer-autumn 2007 . All the samples were freeze-dried , ground to pass through a 1-mm screen and stored at room temperature for CF analysis later on .

Crude fat analysis The crude oil of samples was extracted by Soxhlet using ethyl ether .

Results and discussion The concentration of CF for *suaeda glauca* decreased with plant maturity (see Figure 1) , which was significantly higher ($P < 0.05$) at vegetative and flowering stages than at the period of seed maturation . There was statistic difference in CF concentration between different parts of *suaeda glauca* at flowering stages and the period of seed maturation . The whole plant contained about 21.89% and 15.72% CF respectively at vegetative and flowering stages . These are important values , since the CF content of whole plant was higher than that of many crops (maize , for example) . This character will bring great perspective as a plant for energy and oil for *suaeda glauca* if the biomass was considered .

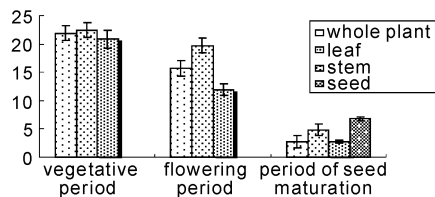


Figure 1 Contents of crude fat for *Suaeda glauca* at different period .

Conclusion *Suaeda glauca* has a good potential as oil and energy plant because it contained abundant fat at vegetative and flowering stages .

Reference

Flowers , T J . , Yeo , A .R . , 1995 . Breeding for salinity resistance in crop plants : where next ? *Australian Journal of Plant Physiology* 22 , 875-884 .