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Zongjiu Sun
Xinjiang Agricultural University, China

Shazhou An
Xinjiang Agricultural University, China

Xu Peng
Xinjiang Agricultural University, China

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Flexibility nutrition substance dynamic of *Seriphidium transiliense* under three enclosure status

Sun Zongjiu¹, An Shazhou, Xu Peng

College of grassland Engineering, Xinjiang Agricultural University, Key Laboratory of Grassland Resource and Ecology in Xinjiang, Urumqi, 830052. * E-mail nmszj@21cn.com

Key words: enclosure, *Seriphidium transiliense*, soluble carbohydrate, starch, protein

Introduction *Seriphidium transiliense*, semi-shrub, mainly distributing in Xinjiang of China (Sun, et al, 2006), had high feeding value in desert pasture of Xinjiang. Because of mainly utilized as spring-autumn pasture, degeneration of *S. transiliense* desert pasture was very serious and had become bottleneck of restricting the development of seasonal stock breeding in North of Xinjiang. In order to protecting desert pasture, enclosure was applied. The dynamics changes and differences for flexibility nutrition substance of *S. transiliense* roots were compared among different enclosure status.

Materials and methods The study site located in Ashli country in changji city, Xinjiang (N43°49'~43°56', E87°02'~87°05', 700~1000 m above sea level). Three treatments were done based on survey of *S. transiliense* desert pasture, namely perennial enclosure (no grazing at least 20 year, PE), forbidding grazing (forbidding grazing in 2002-2004, then began to grazing in May and June, Oct. and Nov. each year, FG) and continuous grazing (grazing in Apr. and June, Sept. and Nov. each year, CG). Herbage root samples were collected in Apr. and Nov. 2006. Solubility carbohydrate, Starch and crude protein concentrations of roots were respectively quantified according to the procedure of Li (2000) and Yang(1993). Analysis of variance (ANOVA) was performed for differences through Duncan.

Results and discussion Lots of studies suggested that mowing and grazing could effect contents and distribution of plant hoarding substance, which could reflect strategy of adapting environment (Olson et al, 1997; Loewe et al 2000). The hoarding substance of *S. transiliense* under the three enclosure model was shown in Figure 1. Soluble carbohydrate contents of roots emerged a single peak trend, and the highest contents was respectively 53.4, 36.8, 32.6 mg/g for PE, FG, CG (Figure 1A). Starch contents had obvious fluctuation, and appeared three inverse V type, but finished store before 17th Oct. (Figure 1B). Crude protein contents appeared down-up-down trend, and the emerging date and duration of peak was different (Figure 1C). Figure 1 showed that contents of soluble carbohydrate, starch and crude protein had significant difference among three enclosure status ($P < 0.05$), and the sequence of soluble carbohydrate was PE>FG>CG, that of starch was PE>CG>FG. Crude protein contents of CG was higher than that of PE($P < 0.05$), but FG appeared instability.

Conclusions Enclosure could accumulate contents of carbohydrate, and continuous grazing could stimulate the increase of crude protein. Reverting back to continuous grazing after short period enclosure was not benefit to the continual development of desert pasture.

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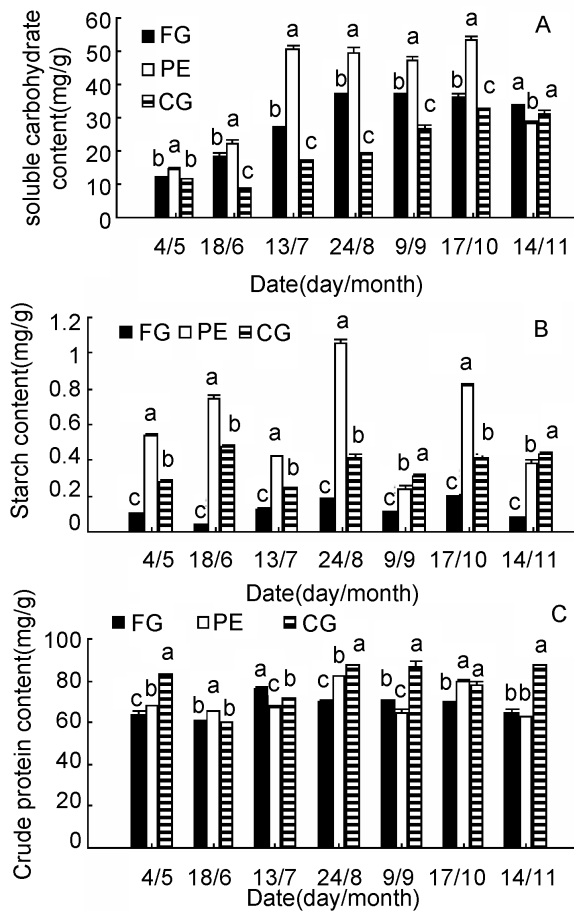


Figure 1 Effect on flexibility nutrition substance of *S. transiliense* roots under three enclosure status.