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Population structure on tubers of *Scirpus planiculmis* in alkali-lake habitat in the Songnen Plains of China

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Key words *Scirpus planiculmis*, tubers, Groups, size distribution

Introduction *Scirpus planiculmis*, a hydrophytic clonal plant, usually forms single dominant community in alkali-lake in the Songnen Plains. *Scirpus planiculmis* is the main weed in China paddy field (Labrada, 1996), which has strong ability to asexual reproduction by tuber rhizomes. This study sampled and analyzed the tuber population, mainly including the type, quantity, biomass and size class of tubers.

Materials and Methods The tubers of single dominant *Scirpus planiculmis* community were sampled during anthesis in June and seeds maturation in July. The samples were 50cm length, 50cm breadth, and 30cm depth, repeated five times (Note: backfill the soil after getting the samples). The tuber of *Scirpus planiculmis* is olivary ellipsoid. Three groups were sorted. Group I is made up of new tubers. Group II is made up of the old tubers which are linked with Group I by a tuber. Group III is made up of dead tuber which are linked with another Group by dead rhizome (Figure 1).

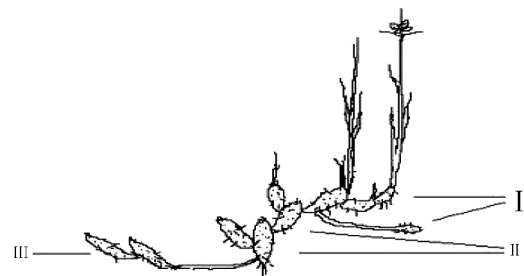


Figure 1 Rhizome types of *Scirpus planiculmis*

Results The volume and weight of tuber shows right thin-tailed distribution (Figure 2) in July. This is under the significant level than classical distribution. The total number and weight of the tubers in July is decreased than that in June (Figure 3), among them Group I and Group II is decreased, while Group III is stable in number decreased in weight comparatively. The weight loss of the tuber of Group I and Group II is attributed to the substance transfer to ground individual plants. However, the weight loss of the tuber of Group III is the natural loss for consenscence.

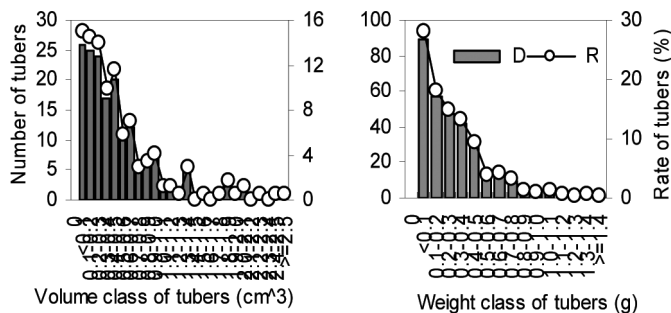


Figure 2 Distribution and ratio in size and weight of tubers on *Scirpus planiculmis* population in July.

Note :D—Distribution, R—Ratio. N—number, w—weight.

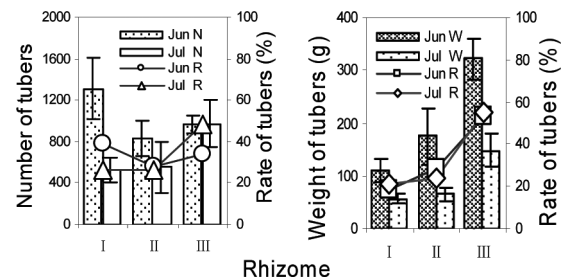


Figure 3 The number, weight and rate of tubers at different groups on *Scirpus planiculmis* population.

Conclusions The tuber of *Scirpus planiculmis* is asexual reproduction organ. That the distribution of its volume and weight has a long right tail indicates maybe there are bigger tuber individuals. However, the sharp shrinkage of the left tail means the smaller ones do not have biological significance. The tuber of Group I, determines new individual plants and new tuber. For clonal population, this is helpful for updating. The tuber of Group II, functions as sustenance and nutrition, carry foraging behavior by tuber clusters. After multiple observations, there was neither bud with viability nor evidence for potential reproducing ability in the tuber of Group III. It is likely to be lost its viability completely.

References

Labrada, R. 1996. Weed management in rice. In Auld, B. A. & Kim, K. U. eds. FAO Plant Production & Protection Paper No. 139. p. 259-272. FAO, Rome.