

## Role of mucilage in seed removal of a sand desert shrub in a semiarid ecosystem

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## Introduction

*Artemisia sphaerocephala* Kraschen. (Asteraceae) is one of the most important pioneer plants of the moving and semi-stable sand dunes in the deserts and steppes of north China. Seeds of this species produce large quantities of mucilage (up to 35% of seed dry mass; Yang *et al* 2010). Our previous reports have shown that the seed mucilage of *A. sphaerocephala* is ecologically multifunctional (Yang *et al* 2010, 2011, 2012a, 2012b). However, the role of mucilage in ant-mediated seed movement remains to be elucidated. The objectives of the present study were to evaluate the effects of seed mucilage on post-dispersal seed removal by ants.

## Methods

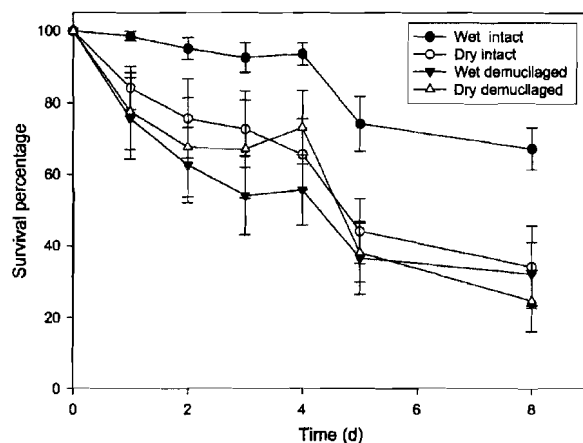
Replicates of 20 seeds were placed at least 50 cm apart from the marked ant nests on 5th July, 2012. There were four types of seeds: (1) wet intact seed (intact seeds submerged in water for 10 d, allowing full mucilage to produce); (2) dry intact seed (no mucilage production); (3) wet demucilaged seeds; (4) dry demucilaged seeds. Seed survival was checked every 1 d.

## Results and Conclusions

Seeds were gradually removed by ants, resulting in a gradually decreased survival percentage for four types of seeds. Wet intact seeds decreased more slowly than other three types of seeds (Figure 1). Final seed survival percentage of wet intact achene was significantly higher than that of other three types of seeds ( $P < 0.05$ ; Figure 1). Thus, mucilage may reduce seed removal as part of the strategy of plant regeneration of *A. sphaerocephala*.

## References

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**Figure 1.** Dynamics of seed survival percentages of *A. sphaerocephala* after placement in the field. Values are means ( $\pm 1$  SE).  $n = 10$ .

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