**Supplementary Materials**

**Text S1 Germination speed of tested plants** **in the growth chamber**

The germination speed of six tested plant species after 30 days exposure to saline and alkaline stress in growth chamber are shown in Fig. S1. The germination speed of *D. spicata*, *J. effusus*, and *V. zizaniodes* was significantly (P<0.05) decreased with the increasing saline stress. For *C. selloana* and *I. Pseudacorus*, the existing of saline stress significantly (P<0.05) reduced the germination speed compared to control. However, for *O. Javanica*, the greatest germination speed was observed at EC of 5 dS/m treatment.

The inhibition of saline-alkaline stress to the germination speed was greater than saline stress (Fig.S1b). The germination speed of all the six tested specieswas significantly (P<0.05) inhibited by the saline-alkaline stress compared to the control. Especially, the germination speed of *D. spicata* and *V. zizaniodes* was significantly (P<0.05) reduced with increasing saline-alkaline treatments. Similar with that under saline stress, the greatest germination speed of *O. javanica*, was also observed at EC of 5 dS/m treatment.



**Fig. S1** The germination speed of tested plant species observed under different treatments in growth chamber (I: saline stress (NaCl); II: saline-alkaline stress (NaHCO3)). Columns containing different letters (a, b, c, d, e) indicate significant differences among treatments for each respective plant species at P = 0.05.

**Text S2 Germination speed of tested plants in the soil pot**

The germination speed of tested plant species under saline and alkaline stress in soil pots is presented in Fig.S2. The germination speed of all tested plant species was significantly (P<0.05) inhibited by saline stress compared to control (Fig. S2a). Especially for *D. spicata* and *C. selloana*, the germination speed decreased with the increasing saline treatments. Under saline-alkaline stress (Fig. S2b), the best germination speed of *D. spicata* was observed at the treatment with EC of 5 dS/m. For *C. selloana*, *I. Pseudacorus* and *O. javanica*, the germination speed significantly (P<0.05) decreased under saline-alkaline treatment compared to control. For *J. effusus*, the germination speed in EC of 7.5, 10 and 15 dS/m treatments was significantly (P<0.05) lower than that in control and EC of 5 dS/m treatments. The germination speed of *V. zizaniodes* in control and EC of 10 dS/m treatments was significantly (P<0.05) higher than other treatments.



**Fig. S2** The germination speed of tested plant species observed under different treatments in soil pot (I: saline stress (NaCl); II: saline-alkaline stress (NaHCO3)). Columns containing different letters (a, b, c, d, e) indicate significant differences among treatments for each respective plant species at P = 0.05.