

## Overexpression of salt and drought tolerance gene *ZxVPI* from succulent xerophytes on downy mildew resistance alfalfa

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Drought and salinity are two major abiotic factors limiting alfalfa production. *Medicago sativa* cv. Zhonglan No.1, a local alfalfa cultivar in northwest China, has strong downy mildew resistance, high rate of growth and yield but sensitive to salt and drought. To generate the Zhonglan No.1 adapting to saline and arid soils, *ZxVPI* (GenBank accession number EU103625), a vacuolar H<sup>+</sup>-pyrophosphatase (H<sup>+</sup>-PPase) gene from the succulent xerophytes *Zygophyllum xanthoxylum*, with *Agrobacterium* mediated transformation, was transformed into callus induction from hypocotyls of Zhonglan No.1. Based upon previous transformation system, optimum procedures were modified as: *Agrobacterium* infection was performed for 10min under normal pressure and pre-culture for 4d, kanamycin selection pressure for hypocotyls callus and somatic embryo induction were 75 and 50 mg.L<sup>-1</sup>. 22 kanamycin-resistant regeneration plants were obtained now, and PCR-positive plants need further study.



Fig.1. Procedure of transformation *ZxVPI* mediated by *Agrobacterium* into *Medicago sativa* cv. Zhonglan No.1, (a) hypocotyls, (b) callus differentiated growing point and leaf primordium, (c) under kanamycin selection pressure, (d) (e) kanamycin-resistant plants.

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