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Jinglin Shen
Jilin University, China

Xia Wu
Jilin University, China

Hongyu Tang
Jilin University, China

Jing Zhang
Jilin University, China

Hengtong Fang
Jilin University, China

See next page for additional authors

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Presenter Information

Jinglin Shen, Xia Wu, Hongyu Tang, Jing Zhang, Hengtong Fang, Xudong Shi, Xue Bai, and Zhuo Hao

Differential proteomics analysis of leaves from *Hordeum Brevisublatum* under salt stress

Shen Jinglin , Wu Xia , Tang Hongyu , Zhang Jing , Fang Hengtong , Shi Xudong , Bai Xue and Hao Zhuo
The College of Animal Husbandry and Veterinary Medicine Jilin University , Jilin Changchun , China 130062 , E-mail :
shenjingshen@yahoo . com . cn

Key words : proteomics , salt stress , *Hordeum brevisubulatum* (Trin) Link , ribulose-1 ,5-bisphosphate carboxylase/oxygenase small subunit , Proteomics

Introduction Proteomics provide a complementary and potentially more comprehensive approach to the analysis of signaling mechanisms . Changes in protein profiles during signaling events can be monitored using two-dimensional (2D) gel electrophoresis or related techniques , detecting alterations in expression levels . *Hordeum brevisubulatum* (Trin .) Link , an excellent forage with high nutritional value and yield , has great economic value . On the basis of previous research on physiological and biochemical features of *H . brevisubulatiu* . , its salt-resistant mutant , and the salt-tolerant molecular mechanism in our Lab . We designed a study with the objective to identify proteins differentially expressed in leaves from *H . brevisubulatum* . under salt stress using two dimensional electrophoresis combined with mass spectrometry to further our understanding of the action mechanism of *H . brevisublatum* under salt stress .

Materials and methods The Protein sample was collected from the leaf of the *H . brevisubulatum* . grown in the lab under salt stress . We construct and modified the two dimensional electrophoresis method according to the material . Two-dimensional gel electrophoresis which is important in proteomics was improved . Some important steps , such as sample preparation , isoelectric focusing , balance , and dyeing were improved . For sample preparation , the tissue sample was ground in liquid nitrogen and then homogenized in the lysis buffer (8M urea , 2M thiourea , 50mM DTT , 0 .5% carrier ampholyte and 1mM PMSF) , then centrifuged at 15000 rpm for 1 h at room temperature . The sample was carefully recovered , avoiding the unhomogenized material at the bottom of the centrifuge tube . For the preparation of gel staining , we tried the " blue silver " method to improve the resolution of the two dimensional electrophoresis map .

Results Using two dimensional electrophoresis and Peptide Mass Fingerprint (PMF) analysis , the differential expressed protein : ribulose-1 ,5-bisphosphate carboxylase/oxygenase small subunit was identified . It implied that a ribulose-1 ,5-bisphosphate carboxylase/oxygenase small subunit may be involved in the salt stress of *H . brevisubulatum* . .

Conclusions The express of the protein ribulose-1 ,5-bisphosphate carboxylase/oxygenase small subunit was reducing significantly in the salt stress group than it was in control group . It indicated that a ribulose-1 ,5-bisphosphate carboxylase/ oxygenase small subunit may played an important part in the salt stress of *H . brevisubulatum* .

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