

## 盐胁迫对NHC牧草Na<sup>+</sup>、K<sup>+</sup>、Pro、可溶性糖及可溶性蛋白的影响

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### 摘要:

为了改良辽宁营口沿海产业基地NaCl型盐碱地,研究了引进美国的新禾顶小麦草(NHC)盐胁迫下的渗透调节物质变化及其部分耐盐机理。以1/2 Hoagland培养液培养NHC,3周后对幼苗进行NaCl和土壤盐胁迫处理。结果在100、200 mmol/L NaCl盐及土壤盐处理条件下,除根K<sup>+</sup>/叶K<sup>+</sup>值及可溶性糖含量极显著变化外,其他各生理指标均极显著增加。在300 mmol/L NaCl处理条件下,各项指标均极显著波动,在300 mmol/L土壤盐处理条件下,7 d后死亡。试验结果表明,NHC牧草通过增加根Na<sup>+</sup>/叶Na<sup>+</sup>值,增加脯氨酸(Pro)、可溶性糖及可溶性蛋白含量,增强耐盐胁迫能力。NHC最大耐受盐浓度分别为土壤盐浓度200 mmol/L, NaCl浓度 300 mmol/L。

关键词: 盐胁迫; 牧草; 渗透调节物质; 可溶性糖; 可溶性蛋白

## Effect of salt stress on Na<sup>+</sup>、K<sup>+</sup>、proline、soluble sugar and protein of NHC

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### Abstract:

The changes of osmotic regulators and salt tolerance mechanism of NewHy Crested Wheatgrass (NHC) under salt stress were studied aiming at improving the saline alkali soil that mainly contains NaCl in Coastal Industry Quarter of Yingkou city in Liaoning province. Seedlings of NHC were cultivated with 1/2 Hoagland nutrient solution, and treated with NaCl solution after 3 weeks. Results showed that under 100, 200 mmol/L soil salt solution and NaCl solution, all physiological indexes increased evidently, except root K<sup>+</sup> / leaf K<sup>+</sup> and soluble protein content. All physiological indexes fluctuated evidently under 300 mmol/L of NaCl solution; and plants died after 7 days of 300 mmol/L soil salt solution treatment. In conclusion, NHC enhanced salt tolerance through increasing root Na<sup>+</sup>/leaf Na<sup>+</sup>, proline content, soluble sugars and soluble proteins. The maximum permissible salt concentration for NHC was 300 mmol/L NaCl solution or 200 mmol/L of soil salt solution.

Keywords: salt stress forage osmotic regulators soluble sugar soluble protein

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