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PEG 6000胁迫对小麦三叶期蛋白表达的影响

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英文关键词: [Wheat](#) [PEG 6000 stress](#) [Three leaf stage](#) [Protein expression](#)

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中文摘要:

为了探索干旱胁迫下小麦蛋白质表达的变化, 选取旱地品种烟D27、陕优225和水地品种新麦18、小偃22、10 31为材料, 在小麦三叶期, 用18%和35%两种浓度的聚乙二醇(PEG 6000)模拟干旱胁迫, 处理待试小麦24 h后, 用TCA丙酮法提取叶片全蛋白, 通过SDS PAGE电泳分析小麦在干旱胁迫后的蛋白质带谱, 并运用高效液相色谱-质谱联用技术鉴定了新麦18的35.0 kD干旱敏感蛋白条带。结果表明, PEG 6000胁迫后分子量28.0 kD蛋白在水地品种中消失, 在旱地品种中正常表达或诱导表达。此外, 干旱胁迫使抗旱品种烟D27诱导产生33.0和23.0 kD干旱应答蛋白条带, 导致抗旱性弱的水地品种新麦18的35.0 kD蛋白条带消失。对新麦18的35.0 kD蛋白条带进行液相色谱分离结合质谱分析后发现其含有17种与基本生命活动有关的蛋白, 这些蛋白与小麦对干旱胁迫的适应性代谢调节有关。

英文摘要:

To explore the wheat proteins with altered expression levels under drought stress, Drought resistant wheat varieties Yan D27, Shanyou 225 and irrigated land varieties Xinmai 18, Xiaoyan 22, 10 31 were used as test materials. Two different concentrations(18%,35%) of polyethylene glycol (PEG 6000) were used to simulate drought stress at three leaf stage of wheat, respectively, TCA/acetone precipitation was used to extract the whole protein of wheat leaves. SDS PAGE electrophoresis was used to separate the differentially expressed proteins under drought stress. High performance liquid chromatography tandem mass spectrometry was employed to identify the 35.0 kD drought induced protein band of wheat cv xinmai 18. Results showed after PEG 6000 drought stress, the 28.0 kD protein band disappeared in irrigated land varieties, while normal expressed or induced in drought resistant varieties. Besides, the 33.0 kD and 23.0 kD drought responsive protein bands were induced in Yan D27 under drought stress. The 35.0 kD protein bands of irrigated land Xinmai 18 was disappeared after PEG 6000 simulated drought stress. Results presented here indicated the protein expression levels changed after PEG 6000 simulated drought stress at three leaf stage of wheat. Mass spectrum identified 17 kinds of proteins related to basic life activities from the 35.0 kD protein band of wheat cv Xinmai 18. These proteins expressed differently under drought stress were possibly involved in the adaptive metabolism of wheat to drought stress.

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