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甘肃省冬小麦农家品种与改良品种的HMW GS变异及品质效应比较

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中文关键词: 小麦 高分子量谷蛋白亚基 沉淀值 品质

英文关键词: Wheat HMW GS Sedimentation Quality

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中文摘要:

为了解甘肃冬小麦农家品种和改良品种HMW GS变异及品质效应，为小麦品质改良和亲本选用提供依据，采用SDS PAGE法和近红外反射光谱法检测340份品种的HMW GS和其中252份的沉淀值、蛋白质和湿面筋含量。结果表明，340份品种在*Glu 1*位点共有14种亚基变异，34种亚基组合形式。*Glu A1*位点共有3种变异，亚基缺失（null)的频率最高，1和2* 亚基出现的频率改良品种（36.9%）比农家品种（12.0%）高；*Glu B1*位点共有7种变异,7+8亚基出现的频率最高，改良品种比农家品种降低36.1个百分点；*Glu D1*位点有4种亚基变异，2+12亚基出现频率最高，改良品种比农家品种降低11个百分点，5+10亚基的频率改良品种较农家品种提高17.6个百分点。含5+12亚基的农家品种及含14+15亚基的改良品种综合品质较优。从供试改良品种中筛选出在2个以上基因位点具有优质亚基的品种46个，其中10个品种在3个位点上都具有优质亚基。

英文摘要:

Allelic variations and quality effects of HMW GS were studied in Gansu winter wheat landraces and modern cultivars to privide information for quality improvement and selection of parents in breeding programs.HMW GS were detected by SDS PAGE in 340 winter wheat cultivars.Sedimentation, protein and wet gluten content were analysed with near infrared analyzer in 252 of them. The results showed fourteen allelic variations and thirty four subunit compositions were present at the *Glu 1* loci,three allelic variations were found at *Glu A*1 locus, frequency（36.9%）of subunits 1 and 2* was higher in improved cultivars than that（12.0%）in landrace. At *Glu B1* locus there were seven allelic variations, of them, subunit 7+8 was dominant, followed by 7+9; the frequency of 7+8 decreased 36.1 percent in improved cultivars than that in landrance; while for subunit 7+9 increased 29.3 percent. Subunit 2+12 was dominant at locus *Glu D1*, frequency of 2+12 in improved cultivars reduced 11 percent than that in landrace, which of subunit 5+10 enhanced 17.6 percent. Landraces with 5+12 and improved cultivars with 14+15 showed better processing quality. In improved cultivars, protein and wet gluten content were high carrying subunit 14+15, while sedimentation high with subunit 7+9. In landraces, protein content showed high with null, whereas sedimentation and wet gluten high were with 5+12. But sedimentation, protein and wet gluten content were all low in landraces and cultivars with subunit 5+10. Loci *Glu A*1 and *Glu D*1 had larger contribution for Gansu winter wheat quality improvement, and locus *Glu B*1 poor effect had. Many landraces with rare subunit 5+12 should be widely used.

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