

研究论文

零式果枝海岛棉铃部性状和纤维品质的遗传及相关分析

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摘要 采用加性-显性及其与环境互作的遗传模型, 对8个零式株型海岛棉亲本及其28个组合F1代的5个铃部性状和5个纤维品质性状的2年资料, 进行了方差分析和成对性状间的遗传相关分析。结果表明, 在铃部性状中, 铃柄长的加性效应对表现型总变异的贡献最大 (VA/VP=33%), 其次是铃粗; 在纤维品质性状中, 比强度、伸长率和克隆值的加性方差占表现型方差的比例相对较大, 均在30%以上; 2.5%跨长的显性效应方差比例最大。纤维长度与铃柄长、铃柄粗、铃长、铃粗间为最高的加性负相关, 铃长/铃粗与纤维长度间为最高的正相关, 5个铃部性状与纤维强度间均存在极显著的加性正相关(其中铃长与比强度间的加性正相关最高, rA=0.78)。因此, 在杂种分离后代群体中, 选择铃柄短、棉铃长而细的单株, 可望选育出品质优良的品种。

关键词 [海岛棉](#) [铃部性状](#) [纤维性状](#) [遗传分析](#) [相关分析](#)

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Analyses of Heredity and Correlation between Boll Traits and Fiber Quality Traits in “0” Plant Type Island Cotton

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Abstract Five morphological traits of boll and five fiber quality traits of 8 parents having “0” plant type (no fruit branch) and their 28 F1 crosses of Island cotton (*Gossypium barbadense* L.) for two years and their genetic variance components and genetic correlation coefficients between pair-wise characters were analyzed by an additive-dominance genetic model with genotype by environment interaction effects. The results indicated that for boll traits, the additive effects contribution to phenotype variance of stalk length boll was the largest (Table 1, VA/VP=33%), and followed by boll stalk width(BSW). As to fiber traits, the additive contribution to phenotype variance of fiber strength, elongation and micronaire was above 30% (Table 1), relatively larger than that of other traits. The ratio of dominance variance to phenotype for 2.5% span-length was the largest in all traits(Table 1). There were the highest negative additive correlations (Table 2, rA=-1.00) between 2.5% span length and ball stalk length, BSW, boll length (BL), boll width (BW), and the highest positive additive correlation (Table 2, rA=1.00%) between boll length/boll width and fiber length, and highly significant positive additive correlations between five boll morphological traits and fiber strength (Table 2, among them, there was highly significant positive correlation between ball length and fiber strength rA=0.78). Therefore, in segregating populations of hybrid off-spring, better cultivar with good fiber traits can be selected by selecting short ball stalk, and long and tenuous cotton boll.

Key words [Island cotton](#) [Boll traits](#) [Fiber traits](#) [Genetic analysis](#) [Correlation analysis](#)

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