

不同氮、磷水平对“双高”油菜品种宁油7号和“双低”油菜品种Tapidor生长和品质的影响

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Effects of different nitrogen and phosphorus levels on seed yield and quality parameters of double high and double low *Brassica napus*SHI Tao-xiong^{1,2}, WANG Shao-si², SHI Lei^{1,2}, MENG Jin-ling¹, XU Fang-sen^{1,2*}

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摘要

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摘要 盆栽试验研究了不同氮、磷水平对甘蓝型油菜“双高”品种宁油7号和“双低”品种Tapidor苗期生长、子粒产量及主要品质的影响。结果表明, 氮、磷胁迫下, 宁油7号苗期地上部干物重及子粒产量均高于Tapidor。不施磷处理(P1), 宁油7号苗期地上部及子粒的磷积累量显著高于Tapidor; 低磷(P2)及磷正常处理(NP), 前者磷含量显著低于后者。低氮处理(N2), 宁油7号地上部及子粒中氮积累量均显著高于Tapidor。这表明宁油7号和Tapidor氮和磷营养效率均存在差异。品质分析表明, 增施磷肥Tapidor含油量增幅显著大于宁油7号; 增施氮肥前者蛋白质含量的增幅小于后者。施氮和磷对宁油7号子粒硫甙及芥酸含量无影响; 施氮提高了Tapidor子粒硫甙的含量, 而施磷则降低了其芥酸含量。这表明氮、磷肥对“双低”品种Tapidor子粒品质的影响大于“双高”品种宁油7号。

关键词: 甘蓝型油菜 氮 磷 生长 子粒品质

Abstract: A pot culture experiment was conducted to study effects of different nitrogen(N)and phosphorus(P)levels on plant growth at the seedling stage of rape seed, seed yield and main quality parameters of Ningyou-7(double high *Brassica napus* cv.)and Tapidor(double low *Brassica napus* cv.). The results show that shoot dry weight at the seedling stage and seed yield of Ningyou-7 are higher than those of Tapidor under both P- and N-deficient conditions. P accumulations in shoot and seed of Ningyou-7 are higher than those of Tapidor without applying P. However, under both low and normal P conditions, P contents in shoot and seed of Ningyou-7 are lower than those of Tapidor. Under the low N treatment, more N is accumulated in shoot and seed of Ningyou-7 than that of Tapidor. These results indicate that there are significant differences between Ningyou-7 and Tapidor under the N and P efficiencies. The increment of seed oil content of Tapidor is higher than that of Ningyou-7 with the P application, and the increment of seed protein content of Tapidor is lower than that of Ningyou-7 with the N application. For Tapidor, seed glucosinolate content is significantly enhanced under the N application and erucic acid content is strongly decreased under the P application. However, applications of N and P have little effect on seed glucosinolate and erucic acid content of Ningyou-7. These results indicate that the effects of N and P on the seed quality of Tapidor are significantly greater than those of Ningyou-7.

Keywords: *Brassica napus* nitrogen phosphorus plant growth seed quality

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