

研究简报

转双抗虫基因741杨节肢动物群落营养结构及生态位变化

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摘要 转双抗虫基因741杨(简称转基因741杨)节肢动物群落中, 基位物种的植食性昆虫丰富度显著降低, 但中性节肢动物丰富度却明显增加。高抗和中抗的节肢动物群落中位物种和顶位物种较之对照有所增多。转基因741杨节肢动物群落的害虫功能团, 其优势状况, 与对照相比有所改变: 天敌优势度高于对照, 中性节肢动物丰富度增加, 并在天敌-害虫的营养链中起着重要的调控作用。鳞翅目害虫的空间生态位宽度最小, 其它各功能类群的生态位宽度较大; 捕食性和寄生性天敌与鳞翅目害虫的生态位重叠均较小, 而与腐生和游逛种类的生态位重叠较大; 各类害虫之间、捕食性天敌与寄生性天敌之间亦存在激烈竞争。转基因741杨对寄生性天敌和捕食性天敌在利用时间资源上有正作用。各种功能类群的时-空二维生态位宽度和生态位重叠均不如单维生态位宽度和生态位重叠值大, 但抗性株系天敌类群对环境的适应性优于对照。

关键词 [转基因741杨](#); [节肢动物群落](#); [生态风险评价](#); [营养结构](#); [生态位](#)

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Variation of nutritional structure and ecological niche of arthropod community in plantation of transgenic insect-resistance hybrid poplar 741

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Abstract Species richness of phytophagous insects in plantation of transgenic insect-resistance hybrid poplar 741 was obviously lower than that of neutral arthropod. The individuals of intermediate and top species apparently increased. In arthropod community, the superiority of phytophagous dominant functional groups was higher than that of CK, and the superiority of predator and parasitoids ascended. In arthropod community of the transgenic insect-resistance hybrid poplar 741, the superiority of neutral arthropod increased, and it played an important regulating role in the natural enemy-pest trophic chain. The spatial niche breadth of target pests was least, and the niche breadths of other functional groups were relatively wide. Predators and parasitoids had a narrower niche overlap with the target pest, but had a wider niche overlap with the neutral species. There are severe competition among pests and between predators and parasitoids. The transgenic insect-resistance hybrid poplar 741 had a positive effect on the natural enemies in utilization of time resources. The values of ecological niche breadths of double dimension and niche overlaps in all kinds of functional groups were not as much as those of single dimension niche, yet natural enemies in transgenic insect-resistance hybrid poplar 741 could be better adapted to environment than those in control.

Key words [transgenic](#) [insect-resistance](#) [hybrid](#) [poplar](#) [741](#) [arthropod](#) [community](#) [ecological](#) [safety](#) [assessment](#) [nutritional](#) [classes](#) [ecological](#) [niche](#)

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