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苯磺隆和2,4-D对盆栽小麦土壤微生物量碳、氮的影响

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摘要: 通过盆栽小麦试验,研究了除草剂苯磺隆和2,4-D对小麦生长过程中土壤微生物量碳、氮以及碳/氮比(C_{mic}/N_{mic})的影响。结果表明,苯磺隆、2,4-D对土壤微生物量碳、氮的影响主要表现为先抑制后激活,抑制作用随着时间的延长和浓度的增大而增强,与对照相比达极显著差异水平。苯磺隆、2,4-D对微生物量碳的抑制作用第14天和第7天分别达到最大,为54.9%和45.2%;对微生物量氮的抑制作用均为第7天最大,分别为51.0%和65.4%。2种除草剂处理均在第28天微生物量碳、氮达到最大,为对照的1.09和1.33倍,呈极显著的激活作用,且激活作用随着浓度的增大而增强;对土壤微生物量碳/氮的影响主要呈增加-降低-增加的变化趋势。研究表明苯磺隆、2,4-D对土壤微生物量碳、氮的影响主要与处理的浓度和时间有关,与除草剂的种类无关。

关键词: 苯磺隆 2,4-D 土壤微生物量碳 土壤微生物量氮

INFLUENCE OF TRIBENURON-METHYL AND 2,4-D ON SOIL MICROBIAL BIOMASS C(CARBON), N(NITROGEN) OF POTTED WHEAT

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Abstract: In order to study influence of common herbicides on soil microbial biomass during wheat growth, we studied influences of tribenuron-methyl and 2,4-D on soil microbial biomass C, N and carbon and nitrogen ratio (C_{mic}/N_{mic}) by potted plants. The results showed that influences of tribenuron-methyl and 2,4-D on soil microbial biomass C and N were activated after the first inhibited, inhibitory action would be strengthened with increase of time and concentration, and significantly higher than the control. Inhibitory actions of tribenuron-methyl and 2,4-D on soil microbial biomass C were highest at the 14th and 7th day, the highest inhibitory rate were 54.9% and 45.2% respectively; Inhibitory action of tribenuron-methyl and 2,4-D on soil microbial biomass N were highest at the 7th day, the highest inhibitory rate were 51.0% and 65.4% respectively. Soil microbial biomass C and N after treatment of the two kinds of herbicides were highest at the 28th day, activations were significantly higher than the control, the activation rate were 1.09 and 1.33 times and activation would be strengthened with increase of concentration. Influence of tribenuron-methyl and 2,4-D on soil microbial biomass C_{mic}/N_{mic} mainly took on increase-decrease-increase trend. Thus influences of tribenuron-methyl and 2,4-D on soil microbial biomass C, N had relation to concentration and time but no relation to type of herbicide.

Keywords: tribenuron-methyl 2,4-D soil microbial biomass C soil microbial biomass N

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