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## 双酚A对大豆幼苗根系生长及体内含量的影响

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摘要: 双酚A (BPA) 是一种代表性的环境内分泌干扰物, 由于大规模的生产及广泛使用, 其在环境中无处不在。与BPA对植物生长影响的研究工作相比, BPA的环境植物学作用机理, 尤其是BPA影响植物生长的机理甚少报道。基于此, 研究了BPA在大豆根系内含量的变化, 以揭示BPA对大豆根系生长影响的直接作用机理。结果表明: 在1.5 mg·L<sup>-1</sup>BPA处理时大豆幼苗根系BPA含量为23.68 μg·g<sup>-1</sup>, 根系各生长指标 (根鲜干重、总长、表面积及体积) 均有所增加。当浓度增加至6.0 mg·L<sup>-1</sup>BPA处理时大豆幼苗根系BPA含量为9.87 μg·g<sup>-1</sup>, 根鲜干重、根表面积及体积下降, 随着BPA处理浓度的增加, 根系内BPA含量逐渐增加, 并于96.0 mg·L<sup>-1</sup>达到1 044.88 μg·g<sup>-1</sup>, 根系各生长指标受严重抑制。BPA胁迫解除后, 大豆幼苗根系内BPA含量变化规律与胁迫期一致, 并较胁迫期明显下降, 各生长指标均有一定程度恢复, BPA剂量越低, 恢复程度越高。

Abstract: Bisphenol A (BPA) is a representative endocrine-disrupting chemical, it is continuously released into the environment because of its large-scale production and extensive application. Compared with the studies of environmental BPA on plants, the mechanisms of BPA action on plants, especially the direct mechanism of environmental BPA on plant growth has been rarely reported. Thus, in this paper, the effect of BPA on soybean roots was investigated from the view of the change of BPA content. After 7 d of 1.5 mg·L<sup>-1</sup>BPA treatment, the content of BPA in soybean roots was 23.68 μg·g<sup>-1</sup>, and the root growth indices (the fresh and dry weights, length, surface and volume of roots) were increased. The BPA content in soybean roots was 9.87 μg·g<sup>-1</sup> at 6.0 mg·L<sup>-1</sup>BPA treatment, and the fresh and dry weights, surface and volume of roots were decreased. With the increasing of the BPA treatment, the BPA content in roots was gradually increased and reached 1 044.88 μg·g<sup>-1</sup> at 96.0 mg·L<sup>-1</sup>BPA treatment, causing the inhibiting effect of root growth. The change trend of BPA content in soybean roots in recovery period was similar to that in the stress period. In addition, the BPA content was obviously decreased and the root growth could be restored when BPA was removed, and the restore degree of root growth was higher with the decreasing of BPA treatment.

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