

论著

# 溴氰菊酯对大鼠脑组织线粒体膜电位和膜流动性的影响

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**摘要** 背景与目的: 研究溴氰菊酯(Deltamethrin,DM)对大鼠脑组织线粒体膜电位及膜流动性的影响。材料与  
方法: 成年雄性Wistar大鼠一次性腹腔注射12.5 mg/kg体重DM(溶剂为色拉油), 5 h、24 h、48 h、72 h后处死,  
提取皮层和海马的线粒体, 分别测定线粒体膜电位、膜流动性、Na<sup>+</sup>-K<sup>+</sup>、Ca<sup>2+</sup>-Mg<sup>2+</sup>-ATP酶和琥珀酸脱氢  
酶活力。同时设立对照组, 只注射色拉油0.5 ml/100 g, 5 h后处死大鼠。结果: 大鼠经DM处理后, 5 h、24  
h、48 h、72 h组的线粒体膜电位下降, 膜流动性降低, Na<sup>+</sup>-K<sup>+</sup>、Ca<sup>2+</sup>-Mg<sup>2+</sup>-ATP酶和琥珀酸脱氢酶活力受  
到抑制, 与对照组相比, 差异均具有统计学意义(P<0.01), 并且与染毒后时间成直线相关关系。结论: DM能  
明显损害大鼠脑组织线粒体功能, 继而引起线粒体氧化磷酸化障碍。

**关键词** [溴氰菊酯](#); [线粒体](#); [膜电位](#); [膜流动性](#)

## Effects of Deltamethrin on Mitochondrial Membrane Potential and Membrane Fluidity in Rats Brain Tissue

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**Abstract** BACKGROUND & AIM: To study the effects of deltamethrin(DM) on mitochondrial membrane potential and membrane fluidity in rat brain tissue. MATERIAL AND METHODS: Male adult Wistar rats were treated intraperitoneally with 12.5 mg/kg DM. At 5, 24, 48 and 72 h after injection, we extracted the mitochondria of rat brain tissue to measure the membrane potential, membrane fluidity, activities of Na<sup>+</sup>-K<sup>+</sup>-ATPase、Ca<sup>2+</sup>-Mg<sup>2+</sup>-ATPase and succinic dehydrogenase.At the same time the control group were merely injected intraperitoneally with 0.5 mg/100 g salad oil and then executed after 5 h. RESULTS: After treatment with deltamethrin, the mitochondrial membrane potential decreased, membrane fluidity was reduced, the activities of Na<sup>+</sup>-K<sup>+</sup>-ATPase,Ca<sup>2+</sup>-Mg<sup>2+</sup>-ATPase and succinic dehydrogenase were inhibited (P<0.01). Moreover, there were correlations between those indexes and time after treatment. CONCLUSION: DM had obvious effects on inhibiting the mitochondrial function of rat brain tissue, then caused the impairment of oxidative phosphorylation in the mitochondria.

**Keywords** [deltamethrin](#) [mitochondria](#) [membrane potential](#) [membrane fluidity](#)

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